FRANCE-BERKELEY FUND

FONDS FRANCE-BERKELEY

ANNUAL REPORT 2018

FRANCE-BERKELEY FUND
203 Moses Hall
University of California, Berkeley
Berkeley, CA 94720

MINISTÈRE DE L'ENSEIGNEMENT SUPÉRIEUR, DE LA RECHERCHE ET DE L'INNOVATION (MESRI)
1 rue Descartes
75231 Paris Cedex 05
France

+1 510 643 5799
fbf@berkeley.edu
fbf.berkeley.edu

MISSION AND VISION

Established in 1993 as a partnership between the University of California, Berkeley and the government of France, the France-Berkeley Fund (FBF) sponsors bi-national collaboration and scholarly exchange across all disciplines: Humanities, Social Sciences, Exact Sciences, Engineering, and Applied Sciences.

Through its annual grant competition, the Fund aims to advance innovative research of the highest caliber, to foster interdisciplinary inquiry, to encourage new partnerships, and to promote lasting institutional and intellectual cooperation between France and the United States.

FROM THE DIRECTOR

Dear Friends,

As the France-Berkeley Fund approaches its 25-year milestone of sponsoring innovative bi-national research, I am pleased to introduce the outstanding new collaborations that we proudly support in 2018-19.

We are grateful to all of our international partners who make these awards possible. A robust endowment, together with ongoing contributions from the UC Berkeley Office of the Vice-Chancellor for Research and the French Ministry of Higher Education and Research (MESRI), have enabled us to award over $200K in grants this fiscal year. We thank our Vice-Chancellor for Research, Randy Katz, for his support, and enthusiastically welcome Linda H. Rugg as the newly appointed Associate Vice-Chancellor. Special recognition is also due to the French Ministry for Ecological and Sustainable Transition for generously funding two of this year's projects through its Climate Plan, "Make Our Planet Great Again," designed to support cutting-edge research related to green energy and sustainability.

Sincere thanks go to the many reviewers on both sides of the Atlantic who provided their expert input in evaluating grant proposals. For their energy and dedication, we thank the members of the Berkeley Evaluation Committee: Michelle Chang, Jeroen Dewulf, Julien Guy, Carlton R. Pennypacker, Robert Price, Jean Walrand, and especially Krishna Niyogi for his 18 years of service. At the French Embassy and Consular offices, we recognize the cooperation of Juliette Donadieu, Hervé Ferrage, Philippe Perez, Mar Roig, and Consul General Emmanuel Lebrun-Damiens. At the MESRI, we appreciate the assistance of Elise Binet, Névine Kocher, and Denis Despréaux. Finally, we extend our gratitude to Professor Clément Sanchez at the Collège de France, and to outgoing Scientific Counselor Minh-Hà Pham, whose dedication and commitment have long sustained the FBF.

Moving forward in 2018 and beyond, the FBF is eager to harness the momentum of innovation across France and California to forge new partnerships and expand our impact, with the ongoing goal of fostering cross-disciplinary collaboration and international exchange.

Sincerely,

LARRY M. HYMAN

2017-18 EXECUTIVE COMMITTEE

Michelle C. Chang*
Associate Professor of Chemistry, UC Berkeley

Bénédicte de Montlaur
Cultural Counselor, French Embassy in the United States

Denis Despréaux
Head of Mission, Délégation aux affaires européennes et internationales, MESRI

Jeroen Dewulf*
Professor of Dutch Studies and German Studies; Director, Institute of European Studies, UC Berkeley

Juliette Donadieu
Cultural Attaché, Consulate General of France in San Francisco

Julien Guy*
Project Scientist, Lawrence Berkeley National Laboratory

Larry M. Hyman*
Professor of Linguistics; Executive Director, France-Berkeley Fund, UC Berkeley

Randy Katz
Vice Chancellor for Research, UC Berkeley

Névine Kocher
Policy Officer for North America, Latin America and the Caribbean, MESRI

Emmanuel Lebrun-Damiens
Consul General of France in San Francisco

Julia Nelsen*
Program Manager, France-Berkeley Fund

Krishna K. Niyogi*
Professor of Plant & Microbial Biology, UC Berkeley

Philippe Perez
Science & Technology Attaché, Consulate General of France in San Francisco

Minh-Hà Pham
Counselor for Science and Technology, French Embassy in the United States

Robert Price*
Professor Emeritus of Political Science; Former Associate Vice-Chancellor for Research, UC Berkeley

Carlton R. Pennypacker*
Astrophysicist, Lawrence Berkeley National Laboratory

Clément Sanchez
Professeur de Physique de la matière condensée, Collège de France; Co-Executive Director, France-Berkeley Fund

Jean Walrand*
Professor Emeritus of Electrical Engineering and Computer Sciences, UC Berkeley

**Member of Berkeley Evaluation Committee*

NEW MEMBERS IN 2018-19

Joining the Executive Committee, **Britt Glaunsinger** is a Professor in the Departments of Plant and Microbial Biology and Molecular and Cellular Biology at UC Berkeley, and an investigator of the Howard Hughes Medical Institute. Her lab is broadly interested in RNA-based regulation of gene expression, and well as how herpes viruses interface with and hijack cellular pathways that control RNA synthesis and fate. More information about her research group can be found at http://glaunsingerlab.berkeley.edu.

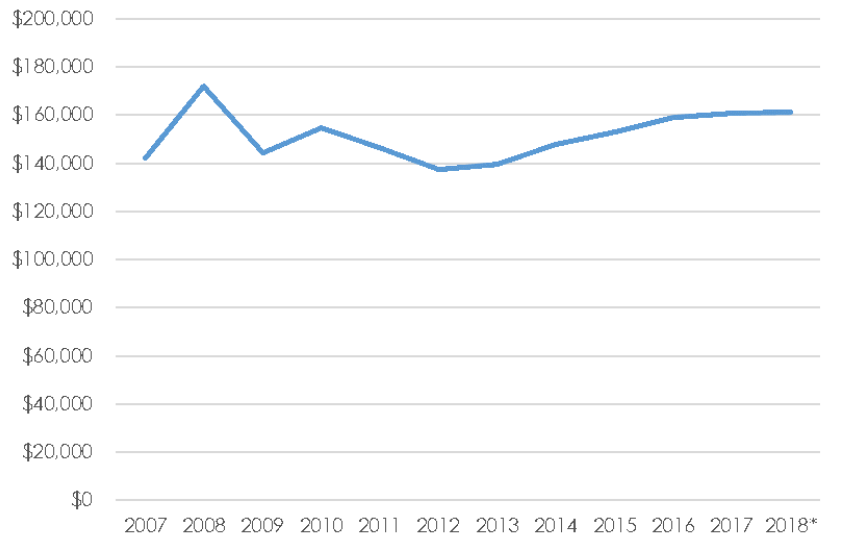
New Executive Committee member **Ting Xu** is Associate Professor in the Departments of Material Sciences and Engineering and Chemistry at UC Berkeley. Her research interests are to design and fabricate functional materials using polymers, organic molecules, nanoparticles, proteins and peptides via "bottom-up" approaches. Prof. Xu has over 90 peer-reviewed journal articles, 5 book chapters and several patents, and is the recipient of several awards including the 2008 DuPont Young Professor Award; 2010 NASA Patent Award; 2011 ACS Arthur K. Doolittle Award and 2018 Bakar Fellow. She was named one of *Popular Science* magazine's "Brilliant 10" in 2009.

FINANCIALS

FUND INTEREST

2007	2008	2009	2010	2011	2012
142,052	172,100	144,403	154,780	146,759	137,602
2013	**2014**	**2015**	**2016**	**2017**	**2018***
139,768	147,813	153,157	159,052	160,722	161,119

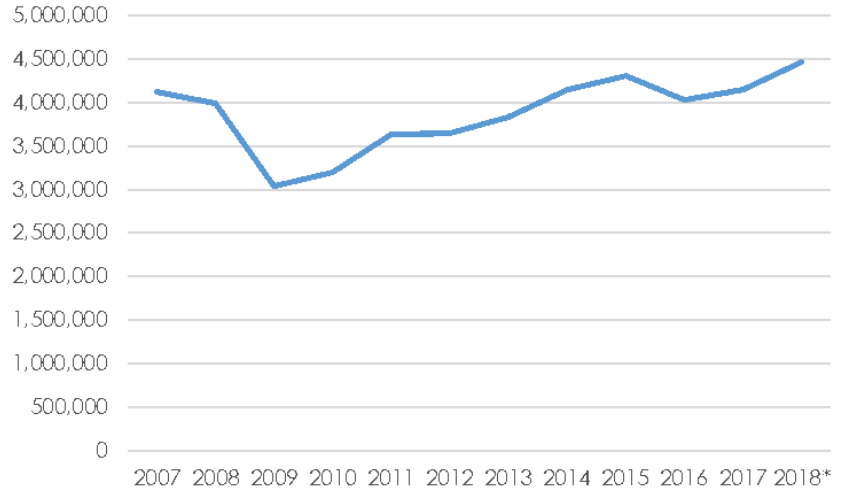
(USD)



MARKET VALUE

2007	2008	2009	2010	2011	2012
4,122,431	3,988,138	3,040,745	3,200,951	3,638,823	3,644,363
2013	**2014**	**2015**	**2016**	**2017**	**2018***
3,832,608	4,149,270	4,312,679	4,026,149	4,153,621	4,469,344

(USD)



APPLICATIONS

In **2018-19**, the FBF is pleased to sponsor **22** outstanding collaborations from UC Berkeley and UC Davis with institutions across France, with awards totaling **$228,480**

From among **63** competitive proposals, grants were awarded to **34%** of applications received, representing all fields of study:

- **11** Exact Sciences
- **7** Humanities & Social Sciences
- **3** Applied Sciences
- **1** Engineering

Two projects are funded by the French Climate Plan initiative, **MAKE OUR PLANET GREAT AGAIN** (MOPGA), launched by President Emmanuel Macron in July 2017 to support innovative research related to sustainable energy and the environment.

Congratulations to this year's winners!

MEET OUR NEW GRANTEES

Adam ARKIN, California Institute for Quantitative Biosciences (QB3), UC Berkeley
Matthieu BARRET, Emersys, INRA, Beaucouzé

Engineering a pathogen-resistant seed microbiome

The seed microbiome, the microorganisms that live on and within seeds, directly affect early stages of the plant life cycle but can also have long-term consequences on plant health and survival. We have designed high-throughput genetics and microbial ecology methods that will inform our design of engineered seed microbiomes to limit seed transmission of microbial pathogens. This project works toward new pathogen treatments for crops.

Jillian BANFIELD, Earth and Planetary Science, UC Berkeley
Simonetta GRIBALDO, Microbiologie, Institut Pasteur

Combining genome-resolved metagenomics and phylogenomics approaches to unravel the diversity and evolution of the Candidate Phyla Radiation (CPR) bacteria

The availability of genomic data from uncultured microbial lineages from a wide variety of environments is dramatically changing our view of microbial diversity. Recently, these techniques have brought to light a huge number of bacterial groups that, together with previously reported sequences, were used to define the Candidate Phyla Radiation (CPR).The CPR may constitute up to 50% of all bacterial diversity on Earth, yet it remains largely uncharacterized. This project will unite the complementary expertise of the Gribaldo (phylogenomics, evolutionary microbiology, Institut Pasteur) and Banfield (genome-resolved metagenomics, ecology, Berkeley) laboratories, to address the diversity and evolution of the CPR.

Louise BERBEN, Chemistry, UC Davis
Marc ROBERT, Laboratoire d'électrochimie moléculaire, UMR CNRS - Université Paris 7

Exploring Photocatalytic CO2 Reduction to Fuels with Small Molecular Iron Clusters

This project will advance the chemistry of CO2 to fuels conversion using small iron clusters by a collaboration to combine fuels production directly with the harvesting of energy from light. Thus we create a sunlight-to-liquid fuel system for storage of renewable energy. Expertise in iron catalyst development at UC Davis complements expertise in photochemistry at University of Paris-Diderot.

Benjamin BLACKMAN, Plant and Microbial Biology, UC Berkeley
Hélène BERGES, CNRGV - Plant Genomic Center, INRA Toulouse

Examining the history and impact of gene content variation in sunflower

Recent progress in plant genomics has revealed that the total functional gene sequence present among all individuals of a species, also known as the pan-genome, is far larger than the content annotated in a single individual's genome. This diversity in gene content arises because large DNA duplication, insertion, or deletion events lead to variation in the presence or absence of whole genes among individuals within species, and this variation may have contributed in the past to crop domestication or adaptation of wild populations to local habitats. The investigators will develop advanced genomic resources to reveal gene content variation among wild and domesticated accessions of the common sunflower, *Helianthus annuus*. Doing so will facilitate greater understanding of what role gene content variation played during the process of sunflower domestication and inform how this variation may be exploited by breeders to improve crop yields under future climates.

Jennifer BUSSELL, Political Science, UC Berkeley
Christophe JAFFRELOT, Centre de Recherches Internationales, Sciences Po

Political Representation in India: The Berkeley-Sciences Po Indian Legislators Project

This project will develop a novel research agenda focused on political representation in India, building upon and integrating previous major data collection efforts by the Principal Investigators. In particular, we will examine the sociological backgrounds and responsiveness to constituents of national, state, and sub-state-level elected officials in India.

Danica CHEN, Nutritional Sciences and Toxicology, UC Berkeley
Mélanie HAMON, Unité des Interactions Bactéries-Cellules, Institut Pasteur

Effects of aging on the immune system and risk of infectious diseases

We propose to address fundamental questions related to aging of hematopoietic stem cells, which give rise to all cells of the immune system. We aim to understand how hematopoietic stem cells lose their functional capacity to support the immune system during aging and explore the therapeutic potential to reverse the degeneration and dysfunction of the aging immune system. Successful completion of these studies will reveal key factors that play paramount roles in maintaining stem cell homeostasis and tissue integrity during the aging process, and suggest new approaches to improve the immune function in the aged population.

Jacob DALTON, South and Southeast Asian Studies, UC Berkeley
Isabelle CHARLEUX, Groupe Sociétés, Religions, Laïcités, CNRS-EPHE

Points of Transition: Ovoo and the Ritual Remaking of Religious, Ecological, and Historical Politics in Inner Asia

Ubiquitous in contemporary Mongolia, Buryatia, Inner Mongolia, and Eastern Tibet/Qinghai, structures of stones or trees covered with scarves, skulls, steering wheel covers, and a staggering array of other objects known as ovoo have long marked sites where ritual, though often highly spontaneous, practices invoke the presence of immanent relations. Built and maintained by various publics, gatherings at ovoo have been major sites of political action, where the identities of and relationships between shamans, lamas, imperial officials, businesspeople, bureaucrats, politicians, and nonhumans are narrated, contested, and re-defined. This project brings together scholars from Northern California and France to develop new insights and formulate research directions in the fields of anthropology, art history, East Asian Studies, and religion pertaining to political ritual in Inner Asia.

Todd DAWSON, Integrative Biology, UC Berkeley
Sylvain DELZON, UMR Biodiversité Gènes et Communautés, Université Bordeaux

Reconciling critical controversies in Plant Hydraulics (***MOPGA**)

This project proposes to acquire knowledge of how leaf function and xylem water transport interact during water stress to produce distinctive water-use behavior among plants, capitalizing on recent, methodological breakthroughs in plant hydraulics. Intended outcomes include a theoretical framework based on quantitative physiological mechanisms that allows us to predict tree health and productivity in response to abiotic stress. The project directly targets a key science and research priority of enhancing capacity to respond to environmental change – by improving the accuracy with which we can predict the impact of climate change on trees. The potential scientific, economic, and ecological benefits are considerable.

Daniel FARBER, School of Law / Center for Law, Energy and the Environment, UC Berkeley
Yannick PEREZ, RITM, Faculté Jean Monnet: Droit, économie et gestion, Université Paris SUD 11

Electric Vehicle Deployment for Urban Residents: Policy and Lessons Learned between France and California

Berkeley Law's Center for Law, Energy & the Environment (CLEE) and Université Paris SUD 11 will jointly organize a California-France conference at UC Berkeley Law on electric vehicle (EV) deployment, specifically lessons learned from France and California on expanding access to EVs among urban residents. Conference speakers will discuss best practices for deploying EV charging infrastructure for residents in multifamily dwellings, managing grid impacts from charging, and providing incentives, grants, rebates to encourage urban residents to purchase or lease EVs.

Daniel FELDMAN, Molecular and Cell Biology, UC Berkeley
Daniel SHULZ, École des Neurosciences de Paris Île-de-France, Université Paris Descartes

Multiwhisker Features Coding in Mouse Somatosensory Cortex

Animals live in a spatiotemporally complex sensory world, but current understanding of how the brain processes sensory information to mediate perception is based on highly simplified, isolated stimuli. This collaborative project will reveal how the brain's cerebral cortex encodes and processes complex tactile (touch) stimuli, using the mouse whisker system as a model. Building on prior work in other species, we will identify the optimal single-whisker stimuli for cortical neurons, and determine how these single-whisker responses are integrated across whiskers and across time to build a neural representation of the complex tactile world.

Mary FIRESTONE, Environmental Science, Policy and Management, UC Berkeley
Graeme NICOL, Laboratoire Ampère, Université de Lyon

Determining the interaction of viruses with autotrophic prokaryotic hosts in soil

While we are beginning to understand the complexity of bacterial and archaeal communities in soil, we are currently ignorant of the roles of viruses in influencing the ecology of these soil populations. Infection by lytic viruses is followed by replication and lysis of the host cell, releases new virions into the environment. In addition to controlling population numbers, viral infection also has major consequences for nutrient cycles. We are targeting a critical process in the nitrogen cycle (nitrification) using stable isotope (13C) enabled metagenomic analyses.

Teresa HEAD-GORDON, College of Chemistry, UC Berkeley
Jean-Philip PIQUEMAL, Laboratoire de Chimie Théorique, Sorbonne Université

Advanced Potential Energy Surfaces for Condensed Phase Simulations: Theory and Applications

The failures of pairwise additive force fields are accumulating and unambiguous for molecular simulation of physical systems, and higher accuracy force fields that introduce new terms that describe many-body polarization and non-classical effects such as charge transfer and penetration are needed. The vastly greater complexity of this additional physics poses great challenges for rational force field design as well algorithmic and software challenges that inhibit their application to grand challenge chemistry applications. The joint project between Prof. Jean-Philip Piquemal (Sorbonne Université, Chemistry & Institut Universitaire de France), and Prof. Teresa Head-Gordon (University of California, Berkeley) will be focused on the development and deployment of new computational methodology for such advanced potential energy surfaces.

Rebecca HEALD, Molecular and Cell Biology, UC Berkeley
Denis CHRÉTIEN, Institut de Génétique et Développement de Rennes, Université de Rennes 1

Understanding the structural basis regulating the size and architecture of the mitotic spindle

During cell division a dynamic, bipolar, microtubule polymer-based machine called the mitotic spindle attaches to chromosomes and segregates them to daughter cells. Correct spindle size and shape is essential for its function, but exactly how spindle microtubules are organized and the spatial cues that lead to distinct spindle architectures in different cell types and species is poorly understood. We are taking advantage of a cell-free system based on cytoplasm isolated from frog eggs that reconstitutes spindle assembly in a test tube to analyze the organization and dynamics of spindle microtubules and reveal novel principles underlying spindle morphology and its regulation.

Todd HICKEY, Classics, UC Berkeley
Jean-Luc FOURNET, Culture Ecrite de l'Antiquité Tardive et Papyrologie Byzantine, Collège de France

Everyday writing in a literary town: Some rediscovered tablets from late antique Panopolis

Professors Fournet and Hickey are interested in the culture and society of an ancient town called Panopolis (modern Akhmim, about a 500km drive south of Cairo). In Late Antiquity (c. 300–700 CE), Panopolis was a “city of letters” second only to Alexandria, and many of the works produced by its authors have been preserved. The documentation illuminating the socio-economic structures that nurtured these individuals, in contrast, is rather poor. This project seeks to remedy this imbalance through the careful study of an extraordinary set of wooden writing tablets recently rediscovered at the British Library.

G. Mathias KONDOLF, Landscape Architecture and Environmental Planning, UC Berkeley
Giacomo PARRINELLO, Centre d'Histoire de Sciences Po - Paris

The Social Life of the Sediment Balance: A Social and Geomorphic Approach to the Transformation of River Systems and Deltas
(***MOPGA**)

Interdisciplinary scholarship on river systems and society is usually concerned with water flows, but rarely with sediment balance. Sediments, however, are essential components of river systems and their deltas to, providing sediment needed to sustain river channels to balance delta subsidence and coastal erosion. Hydroelectric dams, canals, sand and gravel mining, and other human uses alter sediment fluxes, resulting in sediment starvation that causes undermining of bridges and other infrastructure, coastal erosion and retreat of many of the world's river deltas, and loss of ecological value. This project investigates the nexus of social and natural processes behind the modification of sediment balance in river systems. It will convene fluvial geomorphologists, environmental historians, and historical geographers to look at the intersection of policy, economic development and technology with changes in the sediment balance.

Stephen LEONE, College of Chemistry, UC Berkeley
Marino MARSI, Laboratoire de Physique des Solides, CNRS, Université Paris-Sud

Attosecond dynamics in topological insulators

Topological insulators (TI's) are a new class of quantum materials characterized by conduction at the surface, while the bulk is insulating. The goal of this project is to investigate very short time dynamics in these topological insulator materials, at the limits of the shortest possible time resolution achievable today. It brings together an interdisciplinary and complementary know-how from the France-Berkeley groups, with the ambition of pushing forward the frontiers of this research domain. Marsi's group has been among the pioneers of this worldwide effort, with one of the first studies of carrier dynamics at the surface of 3D topological insulators. Leone's group brings an experimental platform suitable for the shortest possible laser-produced pulses of light (called attosecond pulses) to make the measurements. Studying out-of-equilibrium photoexcited topological insulator materials on short time scales is a challenge of paramount importance for the field to test fundamental physical principles, while ultimately determining the speed of possible light-driven devices.

David LIMMER, Chemistry, UC Berkeley
Benjamin ROTENBERG, Laboratoire PHENIX, Sorbonne Université

Understanding energy storage in highly concentrated aqueous salt mixtures

Water metal interfaces have become a topic of renewed interest in the scientific community, due the recent discovery that in the presence of high concentrations of salt, electrochemical devices can be constructed that are stable over a wide range of working conditions. Using recently developed computational tools, we aim to use simulation models to study the molecular properties of highly concentrated salt solutions. By doing so, we hope to understand why these interfaces are so stable, and uncover general design principles for next generation energy storage devices that are both economically and environmentally preferable to traditional ones.

Todd OLSON, History of Art, UC Berkeley
Anne LAFONT, Centre d'histoire et de théorie des arts, École des Hautes Études en Sciences Sociales - Paris

Tabac/Chatbot: Education and Interaction in the Museum Exhibition

This collaborative project is an experiment in the design and use of a digital application in order to extend the educational mission of a museum exhibition in France. Anne Lafont, Directrice d'études, École des Hautes Études en Sciences Sociales (EHESS) and doctoral candidate Maxime Georges Métraux (Université Paris-Sorbonne) are currently organizing an exhibition at the Musée du Nouveau Monde in La Rochelle (2019) dedicated to the visual culture of tobacco during the French Enlightenment. Professor Todd P. Olson and Ph.D. Candidate Karine Douplitzky, in History of Art, UC Berkeley, are building a natural language processing (NLP) interface that would allow any visitor to interact vocally with a chatbot (short for "chat-robot").

Eliot QUATAERT, Astronomy, UC Berkeley
Benoît CERUTTI, Institut de Planétologie et d'Astrophysique de Grenoble, Université Grenoble Alpes

Where General Relativity, quantum electrodynamics, and plasma physics meet: first-principles models of emission from astrophysical black holes

Direct observations of hot gas around nearby supermassive black holes on the scale of the hole's event horizon will soon be in reach of the most powerful telescopes. The goal of this collaboration is to develop new numerical tools to perform the first ab-initio model of energetic particles and radiation being produced in the closest environment of a rotating black hole. This work will provide the most direct and self-consistent bridge between rigorous, first-principles simulations and astronomical observations of black holes.

Venkatesan SUNDARESAN, Plant Biology, UC Davis
Emmanuel GUIDERDONI, CIRAD-INRA-SUPAGRO, Université de Montpellier

Synthetic apomixis in rice: Enabling hybrid seeds for smallholder farmers

High yields from crops can be achieved by the use of hybrid plants, which are much more vigorous than inbred plants. However, seeds of hybrids are relatively expensive due to the additional steps required to generate them by cross-pollination. Consequently, hybrids are underutilized for many crops grown by smallholder farmers, including rice, a major staple cropin the developing world. The barrier could be overcome if it were possible to produce a hybrid crop plant that self-reproduces through seeds while maintaining its hybrid constitution. This project will utilize recent advances in understanding the genetic mechanisms underlying seed formation in rice at UC Davis and at CIRAD France, to develop a method called "synthetic apomixis", for producing rice plants that maintain their hybrid constitution while reproducing asexually through seeds.

Nicholas SWANSON-HYSELL, Earth and Planetary Science, UC Berkeley
Yves GODDÉRIS, Géosciences Environnement Toulouse - Observatoire Midi-Pyrénées, CNRS - Université Toulouse

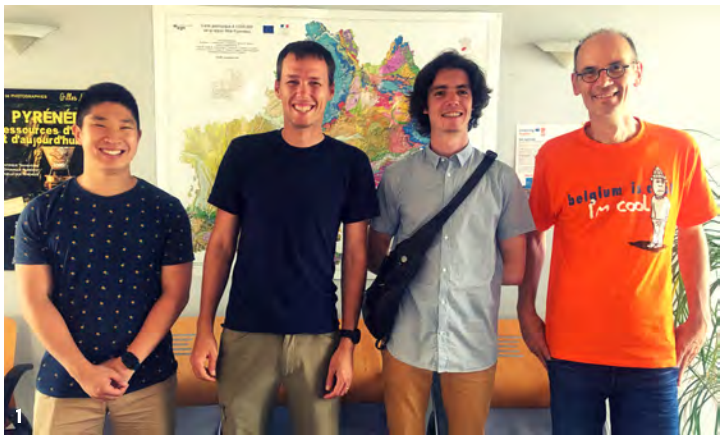
New paleogeographic models and the onset of a major glacial event in the Ordovician

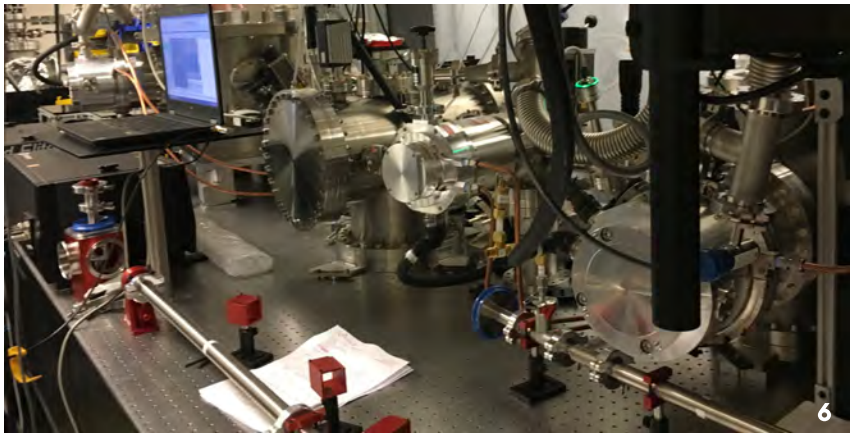
Earth's climate today includes the presence of large polar ice caps, but there have been periods of Earth history with no such glacial ice. This collaborative research seeks to understand the factors that determine Earth's long-term climate state by focusing on a transition from a non-glacial to a glacial climate that occurred 450 million years ago. The research will use updated reconstructions of the past position of the continents in combination with climate and carbon cycle numerical modeling to test the hypothesis that uplift of volcanic rocks within an ancient tropical mountain belt was a major contributing factor in this climatic transition.

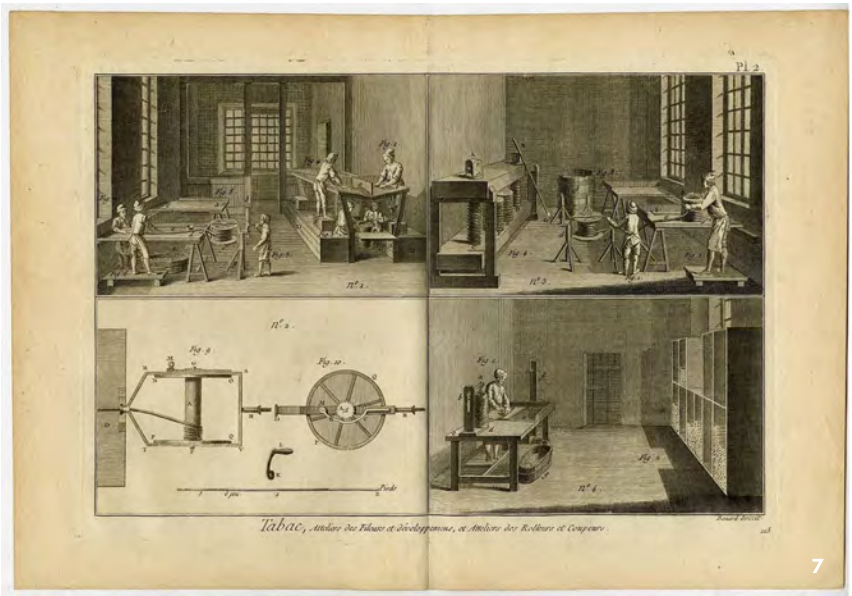
Alexander VON ROSPATT, South and Southeast Asian Studies, UC Berkeley
Stéphane GROS, Centre d'Études Himalayennes, CNRS - Villejuif

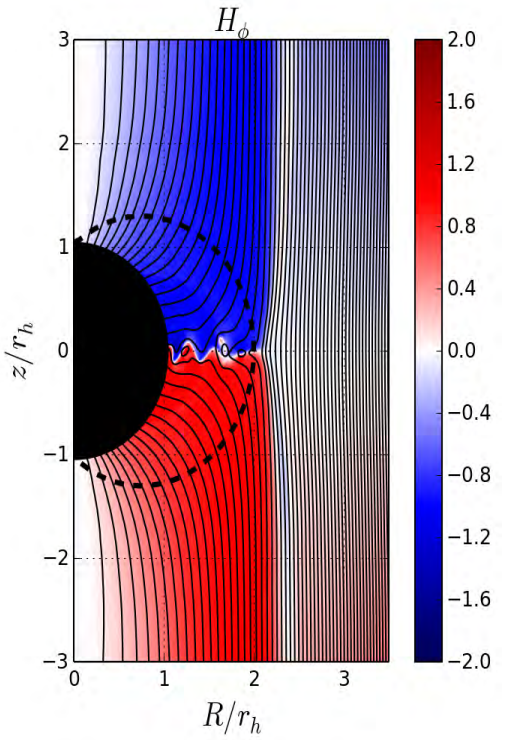
New Directions in Himalayan Studies

This project aims to help develop Himalayan Studies at UC Berkeley in partnership with the Centre d'Etudes Himalayennes (CEH) of the National Center for Scientific Research (CNRS) in France, which is providing matching funds. For this we are hosting a workshop at Berkeley that will bring together experts from both institutions, including graduate students, working on the Himalayan region in the Humanities and Social Sciences. The broadly configured workshop (which will include Environmental Studies, and cover "Tibet and its Margins,"and "Newar Society, Religion and Art") will allow us to explore specific forms of collaboration and lay the ground for developing research partnerships beyond.





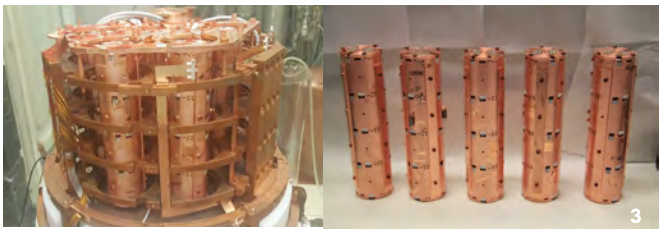


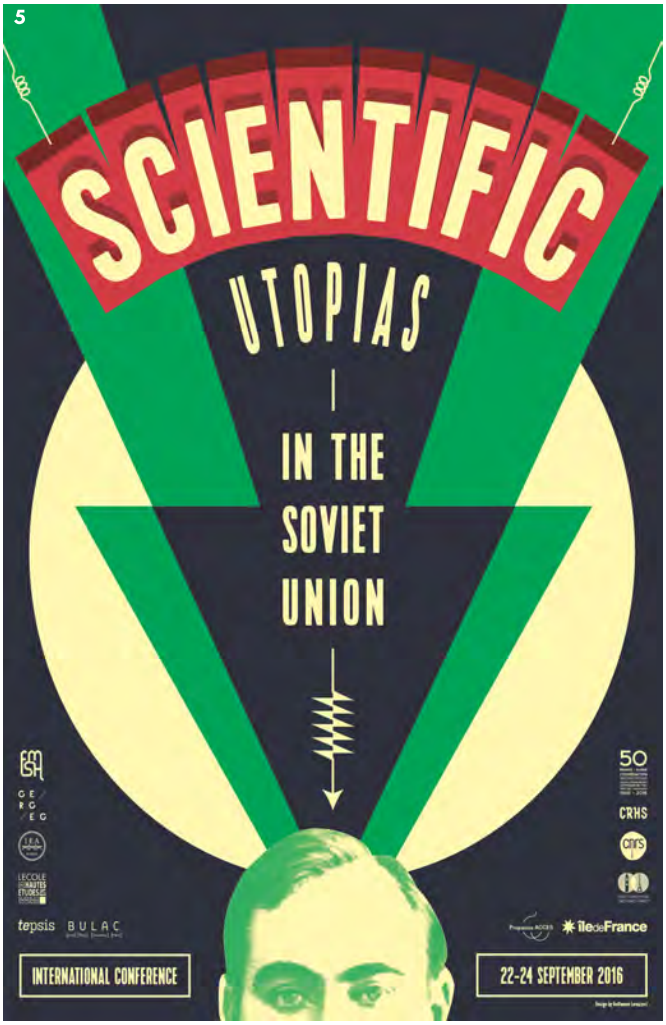


1 *(L to R)* Collaborators Yuem Park (Berkeley PhD student); Nick Swanson-Hysell; Pierre Maffre (Toulouse PhD student); Yves Goddéris | **2** the Mekong Delta (Kondolf-Parrinello) | **3** Collaborator Karine Douplitzky (PhD Candidate, History of Art, UC Berkeley) (Olson-Lafont) | **4** Collaborator Ethan Elkind (CLEE) (Farber-Perez) | **5** Collaborator Lauren Lui (Postdoctoral Fellow, LBNL) (Arkin-Barret) | **6** Laser and vacuum apparatus for measurements of topological insulator materials (Leone-Marsi) | **7** Tobacco manufacturing (Olson-Lafont) | **8** Rotating black hole diagram (Quataert-Cerutti)

RECENT PROJECTS

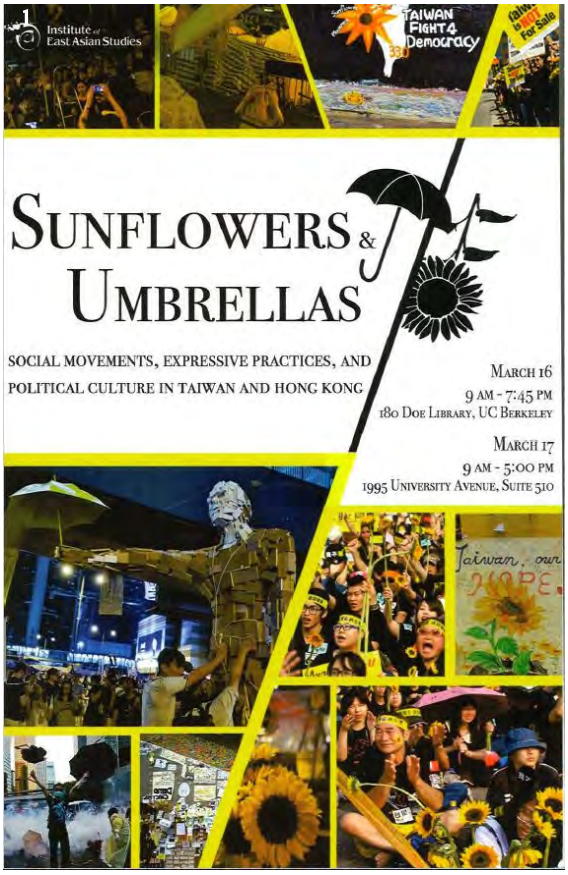
1 *French in Comparison* (McLaughlin-Fagard 2017) | **2** *Structural Health Monitoring* Conference (Mosalam-Rébillat 2016) | **3** CUPID-Mo and Li2MoO detectors (Kolomensky-Giuliani 2017) | **4** *Digital Storytelling Workshop* (Hernandez-Perrier 2016) | **5** *Scientific Utopias in the Soviet Union* (Yurchak-Zakharova 2016)



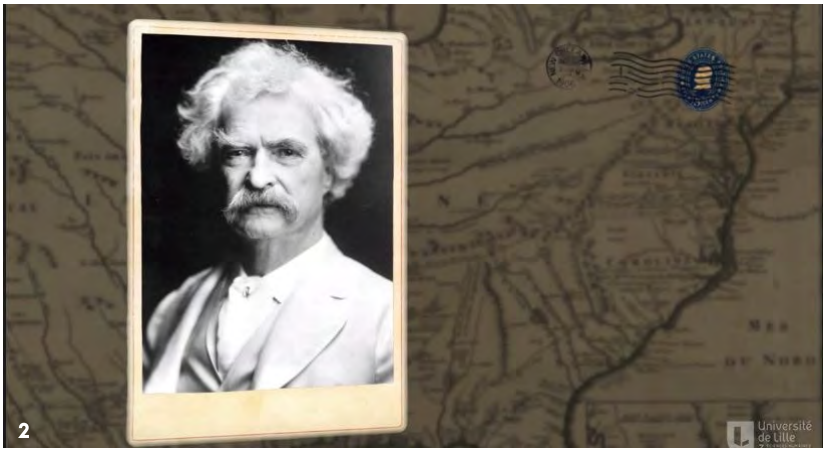


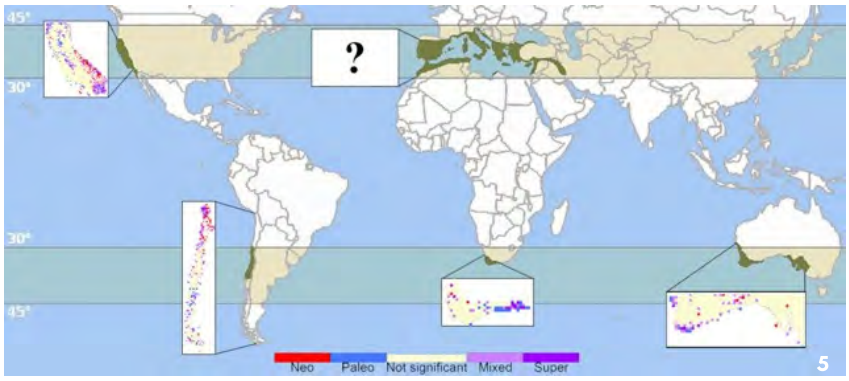
Berkeley Journalism

CELSA



1 *Sunflowers & Umbrellas* Conference (Gold-Veg 2017) | **2** From the documentary film, *Mark Twain et Jeanne d'Arc. L'histoire d'une passion* (Morris-Jenn 2016) | **3** *Form across literature and the sciences in 19th-century Britain* Workshop (Duncan-Vanfasse 2017) | **4** Promoting SmartMarina at Vivatech, Paris (Glaser-Wattenye 2016) | **5** The five Mediterranean hotspots of the world showing preliminary spatial phylogenetic endemism results from four of the five zones (Mishler-Thuiller 2016)





GRANT REPORTS

Jeffrey BOKOR, Dept. of Electrical Engineering and Computer Sciences, UC Berkeley
Stéphane MANGIN, P2M, Université de Lorraine
Combining Spintronics and All Optical Magnetization Switching

INTERIM REPORT

Start Date: December 2017

1) What is the current status of the project? What has been achieved? How does this relate to the original projected timeline?

The advancement of the project is very good. We have greatly strengthened our collaboration: Due to our common interests and numerous conversations for the FBF project, Jon Gorchon, postdoc at UC Berkeley at the time of the writing of this project, applied for and obtained a permanent position in the group in Nancy. Dr. Gorchon has kept strong ties with Berkeley and now acts as a bridge between our two groups. In addition, a workshop on spintronics (MSNOWS 2018) has been organized in Nancy (planned for October 2018) where Prof. Bokor has been invited to contribute. Prof. Bokor will thus spend a week in the laboratory as a visitor. Finally, Prof. Mangin will be visiting Pr. Bokor in Berkeley next July, for a few days.

Young-researcher exchanges have not yet started, as we've suffered from some unexpected events. First, the postdoc Charles-Henri Lambert left the group of Prof. Salahuddin in December 2017. Second, an exchange visit of PhD student Akshay Pattabi that was planned in May 2018 had to be cancelled due to health problems. Finally, Dr. Gorchon moved from Prof. Bokor's group to Prof. Mangin's group in December 2017.

Our efforts on the understanding of the all-optical switching and its combination with electrical impulses has greatly progressed. We were able to grow in Nancy decoupled multilayers of ferrimagnetic GdFeCo and ferromagnetic Co/Pt spaced by a thick Cu layer, and demonstrate all optical switc ing in the ferromagnetic layer. Compared with previous results which were limited to GdFeCo films, this extends the method to an uncoupled ferromagnetic layer. Moreover, the physics of the switching have been attributed the generation of hot electronic spin-polarized currents, and thus allow new interesting spintronic avenues to be explored. The samples were recently sent to Berkeley for ultrafast time-resolved studies of the all-optical switching of these layers, which would allow to better understand the physics and the role of the hot-electron currents.

2) Indicate how much money has been spent to date. How much do you anticipate spending?

So far no money has been spent. A flight was booked, but was cancelled and reimbursed because student A. Pattabi was having health problems. Prof. Mangin's planned visit to Berkeley and Prof. Bokor's to Nancy will be funded via the FBF (~6000$). Once A. Pattabi

recovers, he will visit Nancy for a few weeks. (~3000$) One more student from Nancy will have the opportunity to travel to Berkeley before the end of the funded period.

3) What remains to be done for this project? When will the project be completed?

Time-domain experiments on the previously described multilayer systems will be carried out in Berkeley. New experiments involving ultrashort electrical pulses generated via Auston switches and their influence in magnetic heterostructures will be carried out in collaboration.

4) Comment on the collaborative nature of the project. Highlight aspects that have fostered continuing relationships between French institutions and UC campuses.

The project has allowed both groups to open up and exchange ideas. We have thus a number of ideas for future collaborations. Moreover, the growth capabilities from Nancy have been and will be very important for the collaboration. Finally, the deep knowledge in ultrafast physics, and thermal physics and the notoriety of Prof. Bokor and UC Berkeley has also been very helpful to Prof. Mangin's group. As a consequence of the interactions stimulated by FBF, Dr. Gorchon saw an opportunity to apply for a permanent research position in the institution of Nancy, and Prof. Mangin supported him. Dr. Gorchon was thus able to obtain this very competitive position. After 3 years with Prof. Bokor, he can now foster the collaboration between our two groups from Nancy.

5) Will this project result in a publication? (Indicate form of publication, if possible.)

The project has resulted in a publication that is under review in an international journal, which is focused in the material study of the all-optically switched multilayers and was carried in Nancy. We hope that a following publication will be written about the time-resolved studies of the magnetic dynamics in the same samples, carried in Berkeley, if experiments are successful.

Ian DUNCAN, Dept. of English, UC Berkeley
Nathalie VANFASSE, Laboratoire d'Etudes sur le Monde Anglophone et département d'Etudes du Monde Anglophone, Aix-Marseille Université
Form across Literature and the Sciences in Victorian Britain

INTERIM REPORT Start Date: September 2017

1) What is the current status of the project? What has been achieved? How does this relate to the original projected timeline?

The first phase of the project has been completed. A website has been set up to showcase and record our collaborative research: https://decentered.hypotheses.org/projet-france-berkeley. A workshop in the form of three study days took place in Berkeley. Our collaboration was initiated by Sept. 1, 2017. That included planning, virtual / electronic sharing of work, etc. Our first workshop, held from 3rd to 5th May 2018, featured a mixture of formats, to maximize the opportunities for discussion and intellectual exchange among the participants, who represented different levels of academic study: early-career graduate students as well as those already advanced with their PhD dissertation projects, and assistant and full professors.

2) Indicate how much money has been spent to date. How much do you anticipate spending?

So far the money has been used to finance the first workshop which took place in Berkeley in May 2018 (the other one will be held in Aix next spring). Ian Duncan has devoted additional funds from his research chair and Nathalie Vanfasse obtained a grant of another 2540 euros to cover her own expenses (travel and accommodation) as well as those of Fanny Robles. The money from the Fund was used to support the travel to Berkeley and accommodation of 2 graduate students and one post-graduate students from Aix-Marseille University. The rest of the funds will be used to finance the second workshop as well as fees related to the publication resulting from our research programme.

3) What remains to be done for this project? When will the project be completed?

The next and last stage of the project will take place at Aix-Marseille University in May 2019. It will also be a mixed-format event, featuring :
1.) A seminar with discussion of pre-circulated papers posted on the project website for us all to read ahead of time.
2.) One or two conventional conference-style panels, with speakers reading their papers, followed by discussion.
3.) A workshop in which we will discuss examples of significant / interesting recent published scholarship in the field. Texts will be posted on the website for us to read ahead of time.

4.) A workshop with discussions of selected works from the Victorian period.
5.) A roundtable / discussion of the state of the field, comparing US and French methodological / theoretical / institutional perspectives, disciplinary traditions, and current interests
The workshops scheduled in the France-Berkeley project will be completed in May 2019. The resulting publication is scheduled for 2021.

4) Comment on the collaborative nature of the project. Highlight aspects that have fostered continuing relationships between French institutions and UC campuses.

We are considering possible outcomes beyond our two joint meetings: a formal conference (open to a wider public / colleagues from elsewhere); a publication (a special issue or cluster in the journal Victorian Literature and Culture; or an edited book – Ian Duncan has mentioned the project to the literature editor at Anthem Press). Other possibilities include teaching collaborations at graduate and post-graduate level, with videoconferencing and new media technologies; joint supervisions of MA theses and theses scholarships sponsored by Aix-Marseille University and UC Berkeley.

5) Will this project result in a publication? (Indicate form of publication, if possible.)

The project has already given rise to a scientific blog housed by the French platform «hypotheses» (https://hypotheses.org/) which hosts several thousand scientific blogs. The France/Berkeley tab "Form across Literature and the Sciences in Victorian Britain" fits into a larger blog entitled "Decentered Disciplines" : https://decentered.hypotheses.org

This research programme "Decentered Disciplines" focuses on interdisciplinary English Studies. It studies the porousness and impermeability of conceptual, disciplinary or methodological boundaries, and the notion of discipline itself. It pays attention also to power relations in interdisciplinary projects and it considers the risk of dissolution of the traditional anglophone disciplines – literature, history and linguistics – within other disciplines, or vice versa. The entire research blog has been officially acknowledged by the French national library (Bibliothèque Nationale de France) and given an ISSN number.

The France-Berkeley tab "Form across literature and the sciences in Victorian Britain" makes available materials we have been discussing (pre-circulated papers, texts for discussion, etc.). It establishes links toward other relevant scientific sites; it offers short reviews of books related to the field; and it accommodates drafts of work-in-progress as well as more informal (blog-style) thoughts, responses and provocations.

The project will result in a publication (a special issue or cluster in the journal *Victorian Literature and Culture*; or an edited book – Ian Duncan has mentioned the project to the literature editor at Anthem Press).

Anaïs Martin, "From Phonograph to Podcast: Transmediating Dracula into Contemporary French Radio Drama". With Myriam Ardoin, Laura Ritland

Form across Literature and the Sciences in Victorian Britain

May 3-5, 2018
UC Berkeley

Nathalie Vanfasse, "Victorian Visual Technologies and Literary Form: The Mechanism of the Diorama in Dickens's Pictures from Italy". With Veronica Mi1nacht, Kevin Cristin, Imogen Forbes-Macphail

Workshop participants: Ian Duncan, Myriam Ardoin, Katherine Hobbs, Grace Lavery, Fanny Robles, Rudi Yniguez, Abigail Struhl, Anais Martin, Kevin Cristin, Mary Mussman, Laura Ritland, Imogen Forbes-Macphail, Jessica Ling

Alexei EFROS, Dept. of Electrical Engineering and Computer Sciences, UC Berkeley
Mathieu AUBRY, École des Ponts ParisTech
Automatic exemplar-based correspondences discovery for Art History

INTERIM REPORT Start Date: July 2017

1) What is the current status of the project? What has been achieved? How does this relate to the original projected timeline?

The project started in July 2017 with a visit from Mathieu Aubry to UC Berkeley. An approach to solve the problem has been decided. The creation of an annotated dataset by art historian has been decided and specified. Using an interface designed in France by an undergrad, Karan Dwivedi, several of Elizabeth Honig (Art History, UC Berkeley) students (in particular Davienne Shields and Kyung Oh) worked to annotate examples of artwork correspondences. This annotation process has been more complicated than anticipated, but we believe it will be finished in the coming weeks.

In parallel, in December 2017, a new PhD student, Xi Shen, was hired in Paris to work full time on the project. He collaborated with Shiry Ginosar (UC Berkeley) to present his first results on the project in a paper from the ACM XRDS: Crossroads student magazine (The burgeoning computer-art symbiosis, Shiry Ginosar, Xi Shen, Karan Dwivedi, Elizabeth Honig, Mathieu Aubry). He also interacted with Alexei Efros, who visited Paris and ENPC in May-June 2018. During this visit, the approach we followed has been improved.

Xi Shen and Mathieu Aubry are currently visiting UC Berkeley. The goal of this visit is to finalize the approach with Alexei Efros and Shiry Ginosar, get feedback from Elizabeth Honig. We aim to submit this work for a publication in CVPR (submission in December 2018 - conference in June 2019).

This places us slightly behind the initial timeline, partly because the main student (Xi Shen) driving the project in France only arrived in December 2017, partly because the annotation process was longer than anticipated and partly because Shiry Ginosar visit in France has been delayed. For these reasons, we would like to extend the project until June 2019 and the final conference presentation, allowing for one or two more visits between the partners.

2) Indicate how much money has been spent to date. How much do you anticipate spending?

Spent and processed:
- Mathieu Aubry visit in Berkeley 2017: 3790.69$

Spent and currently being processed (estimations):
- Alexei Efros visit in Paris 2018: 2000$
- Xi Shen visit in Berkeley 2018: 2200$
- Mathieu Aubry visit in Berkeley 2018: 1500$

We would like to use the remaining funds for a last visit.

3) What remains to be done for this project? When will the project be completed?

Our next step is to evaluate exhaustively the current approach and publish it. We would also like to test it on a larger scale and on different datasets. To this aim, we plan one or two more visits between the partners. We expect the project to be mainly finished by December 2018, but also to continue collaborations on the topic.

4) Comment on the collaborative nature of the project. Highlight aspects that have fostered continuing relationships between French institutions and UC campuses.

This project is a very successful collaboration. The problem we tackle originates from a project in Berkeley art history department, who has helped us continuously by selecting and annotating data. The approach we follow, using cycle-consistency as a signal, has been developed jointly between Berkley and Paris computer vision labs. It has already been presented in a joint communication. In the longer term, we plan to continue visits and collaboration between Paris and Berkeley. The collaboration may also extend further than the original partners. Indeed, following this project Mathieu Aubry started to work with other art historians (in particular Béatrice Joyeux-Prunel in ENS Paris) who are interested in the results obtain and would like to join the collaboration, and obtain longer term funding (ANR JCJC) to continue work in this direction, in particular in collaboration with UC Berkeley, Alexei Efros and Elizabeth Honig.

5) Will this project result in a publication? (Indicate form of publication, if possible.)

This project has already resulted in a joint communication: The burgeoning computer-art symbiosis, Shiry Ginosar, Xi Shen, Karan Dwivedi, Elizabeth Honig, Mathieu Aubry, XRDS: Crossroads, The ACM Magazine for Students. Our plan is to also write a computer vision publication, that should be submitted in December 2018.

Lisa GARCIA-BEDOLLA, Graduate School of Education, UC Berkeley
Marie MALLET, Université Paris 1 Panthéon-Sorbonne
The Role of Social Assistance Programs in the Socioeconomic Integration of Immigrants: A Comparative Study of Latino Immigrants in France, Spain, and the United States

INTERIM REPORT Start Date: August 2017

1) What is the current status of the project? What has been achieved? How does this relate to the original projected timeline?

We have completed interviews for this project in three sites: Paris, Madrid and San Francisco. We now have a database of 210 interviews, which are currently being transcribed, translated and analyzed. The interviews have not yet been conducted in the fourth site (New York) because one of the research assistants was no longer able to participate in the project. Consequently, the interviews in the last site will be conducted by the French coordinator during the next academic year. In June, July and August, the preliminary results of the project will be presented at international conferences, as per the timeline of the project proposal. The last phase of the project (i.e. drafting academic articles and submitting them for publication) will begin in June as well, when the French coordinator arrives at UC Berkeley (June-July-August). This phase is likely to last several months, until the articles are ready for publication.

2) Indicate how much money has been spent to date. How much do you anticipate spending?

The expenses of the project to date amount to the forecasted budget of $11,400. It has been used to pay the research assistants to conduct the interviews, and to transcribe and translate them, to compensate the respondents for their participation, and to support the French coordinator's accommodation and transportation expenses related to the project.

3) What remains to be done for this project? When will the project be completed?

The interviews in New York City need to be conducted (we are planning for these to occur in the Fall 2018). The project coordinators and research assistants now need to work on publishing the results of the project. We anticipate having 3 full draft papers by the end of the summer (August 2018), and hope to have them published in the next academic year (before June 2019).

4) Comment on the collaborative nature of the project. Highlight aspects that have fostered continuing relationships between French institutions and UC campuses.

The France Berkeley Fund allowed the French and American coordinators to collaborate on this project. The French coordinator was able to spend 3 months on UC Berkeley campus at

the start of the project and will spend another 3 months on UC Berkeley campus to prepare the results for publication and to disseminate the findings through publications. The project will very likely foster continued collaborations, even after the completion of the project funded through the France Berkeley Fund, due to the ongoing aspect of the project, and because the data collected represents a rich source of raw material that provides high potential for further analysis.

5) Will this project result in a publication? (Indicate form of publication, if possible.)

The results of this collaboration will result in the publication of several academic articles. Three of the targeted journals are: Journal of European Public Policy, Ethnic and Racial Studies, Social Science and Medicine.

Thomas GOLD, Dept. of Sociology, UC Berkeley
Sebastian VEG, Centre Chine, École des hautes études en sciences sociales (EHESS)
Sunflowers and Umbrellas: Social Movements, Expressive Practices and Political Culture in Taiwan and Hong Kong

INTERIM REPORT Start Date: March 2018

1) What is the current status of the project? What has been achieved? How does this relate to the original projected timeline?

The project consisted of a conference held at UC Berkeley on 16-17 March 2018 on the topic of two important social movements that took place in Hong Kong and Taiwan in 2014, bringing together academics from Berkeley, France, as well as Hong Kong and Taiwan, and also scholars and graduate students from other institutions, activists, and artists who took part in the movements.

2) Indicate how much money has been spent to date. How much do you anticipate spending?

The full amount of the FBF grant has been spent. Additional funding was raised from the Taiwan Economic and Cultural Office in San Francisco.

3) What remains to be done for this project? When will the project be completed?

Apart from the publication (see below), the project is completed.

4) Comment on the collaborative nature of the project. Highlight aspects that have fostered continuing relationships between French institutions and UC campuses.

Close collaboration at all stages between the project coordinators enabled the project to bring together different disciplines, different objects from Hong Kong and Taiwan, as well as different institutional networks in France and UC Berkeley. EHESS and Berkeley have a number of ongoing collaborations, but this is the first joint project in Asian studies. By involving graduate students from Taiwan and Hong Kong, we hope to encourage more circulation between Berkeley, EHESS, and institutions in those two territories. The two PIs continue to collaborate to bring the papers to publication.

5) Will this project result in a publication? (Indicate form of publication, if possible.)

We plan to publish a volume of conference papers. Berkeley's Institute of East Asian Studies Publications Series has expressed interest in publishing the volume in both book and electronic form. The papers are due to be submitted by 1 Sept, 2018. The book will be co-edited by the two project coordinators.

SUNFLOWERS & UMBRELLAS

SOCIAL MOVEMENTS, EXPRESSIVE PRACTICES, AND POLITICAL CULTURE IN TAIWAN AND HONG KONG

MARCH 16
9 AM - 7:45 PM
180 DOE LIBRARY, UC BERKELEY

MARCH 17
9 AM - 5:00 PM
1995 UNIVERSITY AVENUE, SUITE 510

Paul KALAS, Dept. of Astronomy, UC Berkeley
Anne-Marie LAGRANGE, Institut de Planétologie et d'Astrophysique, Université de Grenoble/CNRS
International search for moons and rings around the exoplanet Beta Pictoris b

INTERIM REPORT Start Date: October 2017

1) What is the current status of the project? What has been achieved? How does this relate to the original projected timeline?

We are currently organizing the workshop in collaboration with a broader scientific organizing committee. The site has been selected (Observatoire de Nice), the dates have been finalized (September 18 - 20, 2018), the draft agenda has been created, and we have a workshop web site (http://univ-cotedazur.fr/events/beta_pic_2018_nice) where we will be accepting registration information and abstracts (the France-Berkeley Fund is acknowledged at the bottom of the web page).

2) Indicate how much money has been spent to date. How much do you anticipate spending?

There are zero expenditures to date. We anticipate spending the full amount.

3) What remains to be done for this project? When will the project be completed?

We will hold the workshop September 18-20 and the project will be completed shortly thereafter as we process the travel support reimbursement claims.

4) Comment on the collaborative nature of the project. Highlight aspects that have fostered continuing relationships between French institutions and UC campuses.

The co-PI's in Berkeley and Grenoble have been communicating regularly along with investigators located at additional French institutions in Paris and Nice.

5) Will this project result in a publication? (Indicate form of publication, if possible.)

Yes. The purpose of the workshop is to prepare collaborative manuscripts for publication in astronomical journals.

Yury KOLOMENSKY, Dept. of Physics, UC Berkeley
Andrea GIULIANI, Centre de Sciences Nucléaires et de Sciences de la Matière (CSNSM), CNRS / IN2P3 (Institut national de physique nucléaire et de physique des particules)
CUPID-Mo: Search for neutrinoless double-beta decay of Mo-100

INTERIM REPORT Start Date: August 2017

1) What is the current status of the project? What has been achieved? How does this relate to the original projected timeline?

The project focuses on the development of the cryogenic experiment CUPID-Mo to search for neutrinoless double-beta decay of 100Mo. CUPID-Mo is an array of twenty Li2MoO4 bolometric detectors currently operating at Laboratoire Souterrain de Modane (LSM) in the Fréjus tunnel in France. CUPID-Mo aims to demonstrate background rejection capabilities of the scintillator bolometer technology for CUPID, a next-generation tonne-scale neutrinoless double-beta decay project. In addition to this important « demonstrator » role, CUPID-Mo will search for neutrinoless and two-neutrino double beta decays of 100Mo isotope with unprecedented sensitivity.

The project is proceeding according to the schedule outlined in the original proposal. As of this writing, the detector array has been assembled, and is operating at LSM. The detectors demonstrate already adequate energy resolution, and further optimization of operating conditions is ongoing. With the help of this grant, our groups have initiated the development of the software infrastructure for the data analysis, and have implemented the data analysis pipeline at the NERSC high-performance computing facility at LBNL. We have held an analysis workshop in Orsay, France to kick-start the software development. The initial data-taking campaign will commence shortly and will last for about six months. We anticipate obtaining the most stringent constraint on the neutrinoless double-beta decay half-life of 100Mo, and the most precise measurement of its two-neutrino double-beta decay half-life. These results will be summarized on two or more publications in high-profile journals.

2) Indicate how much money has been spent to date. How much do you anticipate spending?

As of this writing, $4,822 has been charged to the grant, with an additional $5,645 in encumbrances. We expect to spend the remaining $934 before the end of the grant period.

3) What remains to be done for this project? When will the project be completed?

The array of 20 bolometric detectors is currently in operation. We anticipate the first scientific publications by the end of CY2018.

4) Comment on the collaborative nature of the project. Highlight aspects that have fostered continuing relationships between French institutions and UC campuses.

CUPID-Mo is an international collaboration of 13 institutions from 6 countries. The FBF funds have fostered a thriving collaborative effort between the UC Berkeley group and the groups in France, with each group bringing the unique expertise to the project. The French groups have lead the development, construction, and operation of the state-of-the-art scintillating bolometer array. The Berkeley group has contributed the temperature sensors, and the extensive expertise in data analysis. After the initial analysis workshop held in Orsay, France, the NERSC computing facility at LBNL was selected as the data processing center for CUPID-Mo, and data analysis is jointly led by personnel in France and Berkeley. Most importantly, the successful CUPID-Mo demonstrator seeded by FBF funds is paving the way for CUPID, a future double-beta decay project with unprecedented sensitivity. CUPID collaboration is currently in the process of being formed.

5) Will this project result in a publication? (Indicate form of publication, if possible.)

We anticipate several journal publications:
- Neutrinoless double-beta decay search in 100Mo with CUPID-Mo: a high-profile publication, most likely in Physical Review Letters
- Measurement of the two-neutrino half-life of 100Mo: Physical Review C or European Physics Journal C
- Design and operation of the CUPID-Mo detector: Journal of Instrumentation (JINST)
In addition, we expect 1-2 Ph.D. theses based on CUPID-Mo results.

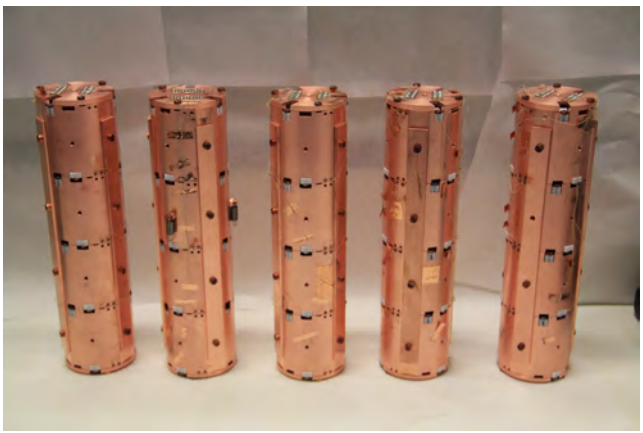


Figure 1: Twenty Li2MoO4 detectors assembled into five towers

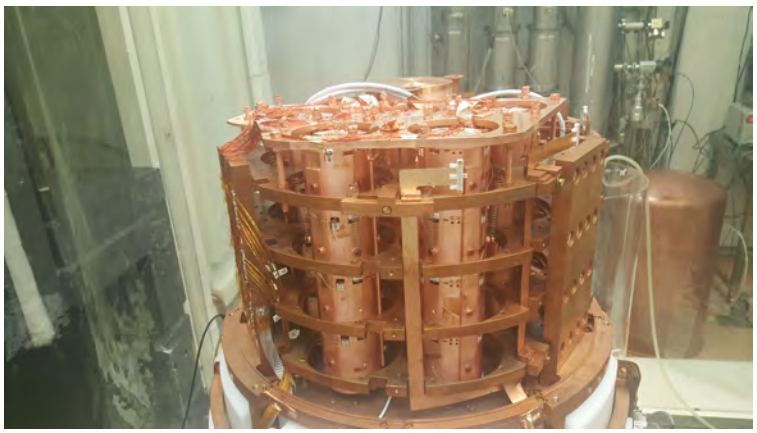


Figure 2: CUPID-Mo detectors installed into the Edelweiss cryostat at Modane Underground Laboratory in France

Arash KOMEILI, Dept. of Plant and Microbial Biology, UC Berkeley
Christopher LEFÈVRE, Institute of Biosciences and Biotechnologies, CEA/CNRS/Aix-Marseille Université
Uncovering the molecular mechanisms of greigite biomineralization in magnetic bacteria

INTERIM REPORT

Start Date: October 2017

1) What is the current status of the project? What has been achieved? How does this relate to the original projected timeline?

Over the first 6 months of the project we have mainly worked to hire relevant personnel for the project and discuss the actual scope of the collaboration.

One area of progress has been the further development of a genetic system for Desulfovibrio magneticus RS-1 by the Komeili lab. This organism, and the general methodology, will be used in examining the genetic components of magnetosome formation from unculturable magnetotactic bacteria studied by the Lefevre group. The work has been submitted for publication and is available as a pre-print on biorxiv (https://doi.org/10.1101/375410).

2) Indicate how much money has been spent to date. How much do you anticipate spending?

$638 has been spent to date. We anticipate spending the full awarded amount.

3) What remains to be done for this project? When will the project be completed?

The team from both groups will meet in September 2018 at the International Meeting on Magnetotactic Bacteria where we will discuss the latest developments in our research. We will then schedule a visit from the Lefevre group to Berkeley to initiate the collaborative portion of the work. Given the unforeseen issues in recruitment we plan to request an extension beyond the one-year course of the grant so that the work can be completed as proposed. We hope to have a new end-date of August 31, 2019.

4) Comment on the collaborative nature of the project. Highlight aspects that have fostered continuing relationships between French institutions and UC campuses.

Once we fully initiate the collaboration, we anticipate development of a project that can be continued for many years. Other than publications, one desired outcome is to use this project to generate preliminary data for future grant submissions.

Lori LUBIN, Dept. of Physics, UC Davis
Olivier LE FÈVRE, Laboratoire d'Astrophysique de Marseille, Aix-Marseille Université
Building the Giants: Cluster Formation and Galaxy Evolution over the Last 12 Billion Years

INTERIM REPORT

Start Date: November 2017

1) What is the current status of the project? What has been achieved? How does this relate to the original projected timeline?

The proposal teams have completed our first in-person meeting, held at LAM in February 2018. At this meeting, we completed the following items: (1) made an outline of the overall goals of this program; (2) planned out the ground-based observing proposals that are required to achieve these goals; (3) discussed the content and focus for the 3-year NSF AARG and NASA ADAP grant proposals; and (4) laid out the specific content to be included in our first two publications.

Since then we have submitted two observing proposals for additional spectroscopy on the protocluster sample using DEIMOS on the Keck 10-m and FORS2 on the Very Large Telescope (VLT), as well as an ALMA proposal to measure gas mass in the member galaxies of a proto-supercluster at z = 2.45. The UC Project PI, with the French Project Coordinator Le Fevre as a collaborator, also submitted two 3-year grant proposals to NSF AARG and NASA ADAP to obtain additional funding for this project. The first paper, which focuses on the proto-supercluster at z = 2.45 and its expected evolution, was submitted on June 15 to Astronomy & Astrophysics. The second paper, which focuses on the global trends in star formation rate (SFR) and stellar mass (SM) as a function of local density, is currently in preparation and will be completed this summer.

Our second in-person meeting will be held at UC Davis on July 9-13, where we will complete the second paper, finalize any remaining analysis issues of the two cluster samples, determine the content and authorship of the next papers in the series, and continue our discussion of future observing proposals, in particular for the Hubble Space Telescope (HST) and James Webb Space Telescope (JWST).

Our schedule of activities has been consistent with our proposed work timeline.

2) Indicate how much money has been spent to date. How much do you anticipate spending?

We have spent approximately $5500 on travel for two UCD participants, including the UC PI, to travel to Marseille for our first group meeting in February. The remaining funds will be used to cover the cost of travel for two French participants, including the French Coordinator, to Davis in July for our second group meeting.

3) What remains to be done for this project? When will the project be completed?

All of the detection and analysis software is now complete. We have completed the quantification of the general trends (in SFR and SM) with local density from z = 0.6 to 5 using the two surveys; however, we still need to finalize the protocluster sample in VUDS. Once the sample is completed this summer, we will associate the high-redshift protoclusters (the progenitors) with their lower-redshift descendants from the ORELSE Survey, using already-available numerical simulations plus semi-analytic models, for our one-to-one comparisons. We expect these analyses to result in at least two additional publications and anticipate the completion of those by the end of the year.

4) Comment on the collaborative nature of the project. Highlight aspects that have fostered continuing relationships between French institutions and UC campuses.

Our FBF project is completely collaborative. Both the UCD and French participants are official collaborators on all five research grant and ground-based observing proposals that have already been submitted. As an extension to this project, we are also exploring additional space-based observations (see item 1 above) to quantify the morphologies of protocluster members as another avenue to study evolutionary trends between the high-redshift VUDS and low-redshift ORELSE survey. These large observing proposals will be submitted in August 2018 for HST Cycle 26 and sometime in 2019 for Cycle 1 JWST.

5) Will this project result in a publication? (Indicate form of publication, if possible.)

Yes, see items (1) and (3) above. The first paper, entitled “The progeny of a cosmic Titan: a massive multi-component proto-supercluster in formation at z=2.45 in VUDS” by Cucciati et al., was already submitted to the journal Astronomy and Astrophysics. We expect at least three additional publications to completed by the end of the project period.

Mairi MC LAUGHLIN, Dept. of French, UC Berkeley
Benjamin FAGARD, Laboratoire Lattice, CNRS, ENS & Université Paris 3 Sorbonne nouvelle PSL & USPC
French in Comparison: The Comparative Approach from Historical Linguistics to Language Pedagogy

INTERIM REPORT Start Date: December 2017

1) What is the current status of the project? What has been achieved? How does this relate to the original projected timeline?

We used the funds as planned to run a joint workshop in April 2018. The workshop was split into two parts: a one-day public workshop and two days of meetings for the teams from Lattice and UC. Over the course of three very intensive days we were able to share our expertise on the linguistic facts and determine how to move forward with a long-term collaborative project. The next stages of our collaboration involve designing online tools for advanced learners of French. To this end, members of both of our institutions will continue to work together both remotely and in person. We are currently working on the online tool in order to teach the first syntactic construction that we are interested in, namely dislocation. Members of both institutions are currently engaged in designing the tool and we plan to beta test it in the classroom in September 2018 when Rick Kern is teaching an undergraduate class, French 146: An Introduction to French linguistics. We plan to design two further online tools for advanced learners of French. The first is a tool which will let an
instructor create a gap-filling exercise to test students' knowledge. For example, an instructor will be able to insert a text and the tool will conceal all prepositions. The student will then insert a preposition and be able to compare it to the original. The second is a tool that will teach advanced learners the nuance of preposition choice with French verbs. We plan to work on both of these tools over the course of the academic year 2018-2019.

2) Indicate how much money has been spent to date. How much do you anticipate spending?

We have spent $10,400. We anticipate spending the remaining $1000 in two ways: first to pay Rachel Weiher to carry out the linguistic analysis needed to design the tool to teach dislocation and second to help pay for Mairi McLaughlin's trip to the Lattice lab in the fall. The part of the project funded by the France Berkeley Fund will therefore be complete in Fall 2018.

3) What remains to be done for this project? When will the project be completed?

We applied for FBF money as seed money to bring the two teams together in order to start a larger long-term project together. The first stage of the project will be completed by Fall 2018 once Mairi McLaughlin has visited Lattice and once the first online tool has been piloted in the classroom by Rick Kern. Laure Sarda won funding from another source to pay

for the next stages of the project so, as planned, we will continue our collaboration.

4) Comment on the collaborative nature of the project. Highlight aspects that have fostered continuing relationships between French institutions and UC campuses.

This has been a very successful collaboration so far. It was particularly beneficial to be able to spend three days in one location in order to work intensively to set up the long-term collaboration. Our two institutions have very complementary resources and needs so we spent some time exploring how to bring everyone together in the most fruitful way. The three tools reflect the needs of advanced learners of French in our classrooms at UCB but also the expertise of the linguists at Berkeley and at Lattice and the skills of the engineers at Lattice. The support of the Berkeley Language Center has also been essential: they provided physical space for the workshop, intellectual and logistical advice and may also help to host the tools online. This project also has the advantage of involving a French linguist from UC Santa Cruz, Brian Donaldson. Despite being only a few hours from Berkeley, the workshop was his first visit to our campus and was therefore an excellent opportunity for our graduate students at Berkeley to get to know him and his work. He is already serving on the dissertation committee of one of ours students and I hope that he will now be more involved with the others.

5) Will this project result in a publication? (Indicate form of publication, if possible.)

The project will lead to the creation of three online tools for advanced learners of French. Once we have beta tested the tools in UC classrooms (French 3, French 4, French 102, French 146, French 148), the tools will be open access.

Participants of "French in Comparison" workshop, April 2018

Saul PERLMUTTER, Berkeley Institute for Data Science, UC Berkeley
Bruno LATOUR, Medialab, Sciences Po

Mapping Controversies and Conspiracies: Exploring conceptual boundaries and pedagogical practices

INTERIM REPORT Start Date: 2017

**report prepared by Charlotte Cabasse-Mazel and Nicolas Benvegnu*

1) What is the current status of the project? What has been achieved? How does this relate to the original projected timeline?

In accordance with our original timeline, the project is, at this date, completed. We've organized two very successful workshops: the first one in Paris between the 03.06.2018 and the 03.08.2018 and the other one in Berkeley between the 05.02.2018 and the 05.05.2018. Each workshop has allowed the team of the partner institution to discover and engage with the research program of the host institution. In both cases, feedback from workshop participants have been extremely positive and participants have established solids connections (both institutional and scientific) that will allow developing joint research program in the future.

2) Indicate how much money has been spent to date. How much do you anticipate spending?

At this date, we have spent $8263.02 (see details of the expenses in the attached documents). We don't expect more spending, but are waiting for some participants to share with us some remaining travel expenses.

3) What remains to be done for this project? When will the project be completed?

The project is completed. Program details can be found below.

4) Comment on the collaborative nature of the project. Highlight aspects that have fostered continuing relationships between French institutions and UC campuses.

The first workshop in Paris was designed to be exploratory in order for UC Berkeley visitors (Claudia von Vacano, Stuart Geiger and Charlotte Mazel-Cabasse) to get acquainted with the research activities, educational program and tools development of the MediaLab, with a special focus on network analysis and software for mapping controversies. During the three days workshop, the MediaLab team members introduced their research axes around three major themes: innovation tools and practices for education, software and interface and research design. The Berkeley workshop followed the same approach with the objective

to present the work of the Media Lab to our communities (BIDS, D-LAB and CSTMS) and to draft collaborative research projects. BIDS, D-Lab and CSTMS were each represented in these meetings which also had a public component.

The first meeting focused on Mapping controversies for Citizen science and Public engagement: this discussion served as an introduction to the mapping controversy project and methods for the Berkeley participants who reflected on their challenges at the methodological level (how to include groups or subgroups in to the research design) or at the level of the dissemination of the results (how to share scientific knowledge). Another meeting was devoted to D-Lab where Von Vacano and D-Lab consultants had a chance to present their teaching model and activities. Discussions investigated the ways in which the Mapping controversies classes and format could be supported by D-Lab and what would be the value for D-Lab constituency. The complementarity of the two approaches - the bottom up model of D-Lab and the network analysis data centric workflow developed by the Media Lab - seem to be very fruitful cross pollination. As a demonstration of this complementarity, the discussion presented the rare opportunity for a great exchange between a researcher (Adam Anderson) facing problems of data visualization and MediaLab team members (Guillaume Plique and Robin de Mourat) who have been developing data visualisation solutions to explore complex data set.

Focusing this time uniquely on software, a more meta discussion was also organized around the challenges of developing tools for STS meeting/ Introduction to Jupyter. Chris Holdgraf and Yuvi Panda, DevOps' at the Data Science Education Program, joined us to presented Jupyterhub, while Guillaume Plique and Robin de Mourat demoed their Data scape and other softwares. A public panel discussion was organised on Thursday with the BIDS fellows and guests on the topic of "Teaching critical thinking in a datafied world" at BIDS. This public session was centred around the three different models and approaches to teaching critical thinking in interdisciplinary, data-centric and computational context. Saul Perlmutter presented on the Sense and sensibility and Sciences while Margarita Boenig-Liptsin and Cathryn Carson shared the syllabus of their Human Contexts and Ethics of Data class. Finally, Nicolas Benvegnu presented the Mapping Controversies model, Forccast and the ongoing project "Nouveaux Cursus à l'Université".

The wrap-up discussion was an opportunity to open the discussion with CSTMS and D-Lab on the possibility to integrate some of the Mapping controversies framework as an option for the STS Designated emphasis and the possible collaborations between CSTMS and D-Lab. This round table also presented the opportunity to for our partners from the Science History Institute who have been instrumental in supporting the workshop to define more precisely what could be the scope of their participation. Finally, on Friday, Researchers Dennis Browe and Nikobi Petronelli (UCSC) led us in a "walking ethnography" method utilized by members of the Seeing Like a Valley working group (PI, Joseph Klett, Science History Institute). Seeing Like a Valley is a network of scholars researching the moral imagination of today's Silicon Valley, with a special focus on digital tools for disseminating research to a public beyond academia. This particular walk, titled the Third Street Project, is an attempt to understand the social changes created by the biotechnology industry in the Mission Bay region of San Francisco and echoed nicely similar projects developed by MediaLab.

5) Will this project result in a publication? (Indicate form of publication, if possible.)

At this point, collaboration between the two institutions will evolve in 3 different dimensions: 1. Students exchange: Claudia Von Vacano, Executive Director, D-Lab and Berkeley Digital Humanities and Nicolas Benvegnu, FORCCAST Director are developing a joined effort to include Digital Humanities and Mapping controversies in the Sciences Po and UC Berkeley Dual Degree Program. 2. Tools and Methods: Adam G. Anderson Mellon Postdoctoral Fellow in the Digital Humanities and Guillaume Plique, developer at the MedaiLab, have worked on new methods on network analysis and visualization that has been presented in professional conference. 3. Joseph Klett, Claudia Von Vacano and Charlotte Mazel-Cabasse are pursuing discussions around digital methods and the studies of the digital. Another meeting has been planned at the American Sociology Association in Philadelphia and at the Society for Social Studies of Science (4S) conference in Sydney in August 2019 with the support of the Science History Institute.

Carla SHAPREAU, Dept. of Music, UC Berkeley
Christine LALOUE, Musée de la musique, Cité de la musique - Philharmonie de Paris

The Economic, Social, and Political World of Violins in the Pre-War and World War II Eras: Bridging the Archival Gap Between the Musée de la Musique and the Smithsonian Institution Collections

INTERIM REPORT

Start Date: October 2017

1) What is the current status of the project? What has been achieved? How does this relate to the original projected timeline?

We are on target with this project in terms of substantive collaborative work and our timeline. We have had many meetings and have engaged in records analysis in Paris (October 2017) and at the Smithsonian Institute Archive (April 2017), as planned. We have analyzed and continue to analyze information from archival records as they relate to international commerce involving instruments of the violin family during the pre-war and World War II periods through the lens of one major Parisian violin dealer, whose historical records during the relevant timeframe are split between archives in the Musée de la musique and the Smithsonian Institution. We are taking into consideration issues of authenticity, provenance, and value, as well as the network of experts, dealers, musicians, teachers, collectors, suppliers, and others in the world of violins. The totality of this evidence and its interpretation is contributing to an understanding of the social, economic, and political landscape for these international transactions, and we will be documenting our project findings.

2) Indicate how much money has been spent to date. How much do you anticipate spending?

The grant award was in the sum of $11,400. We expect that the grant award of $11,400 will be fully utilized by completion of this project. Grants funding in the sum of approximately $10,900 has been spent to date in connection with research, meetings, and analysis in the Musée de la musique and the Smithsonian Institution Archive. We expect to compensate a junior scholar/student with the remaining funds for further data review, analysis, and input.

3) What remains to be done for this project? When will the project be completed?

The relevant archival records have been photographed in France and at the Smithsonian Institution Archive, the information contained in these historical materials has largely been transcribed and analyzed and preliminary findings are in draft format. Some additional transcription and analysis remains to be completed and after this is accomplished we will prepare the final report. We expect the project and final report to be completed on time in or before October 2018, one year from our start date.

4) Comment on the collaborative nature of the project. Highlight aspects that have fostered continuing relationships between French institutions and UC campuses.

This project has been collaborative at every step. Christine Laloue and Jean- Philippe Echard (Musée de la musique), and Carla Shapreau (UC Berkeley) have conducted meetings and research together in Paris and Washington D.C. and this working relationship has been very productive. Our expertise is distinct but also overlaps in several areas; the pairing of our complementary areas of research and expertise has facilitated progress on this study. In addition to our collaboration, we have reached out to others at French and U.S. institutions, including other scholars at the Musée de la musique, consultations with Alain Prévet and Thierry Bajou of the Ministère de la Culture and with Florence de Peyronnet-Dryden, Archives nationales. We hope that the future of this project will continue to evolve, further cementing the relationship between the University of California, Berkeley and the Musée de la musique. Regarding future efforts, in addition to publishing our research findings, we are also in discussions regarding a possible UC Berkeley contribution to a digital humanities project that the Cité de la musique is involved with titled MIMO (http://www.mimo-international.com/MIMO/), which is a freely accessible database for information on musical instruments held in public collections.

5) Will this project result in a publication? (Indicate form of publication, if possible.)

Yes, we expect to publish the results of our research and we are in preliminary discussions with the editors of a book project in process regarding a possible chapter contribution. We will keep the France Berkeley Fund advised as details are confirmed.

Sug Woo SHIN, Dept. of Mathematics, UC Berkeley
Stefano MORRA, Département de Mathématiques, Université de Montpellier
On mod p and p-adic Langlands functorialities

INTERIM REPORT

Start Date: October 2017

1) What is the current status of the project? What has been achieved? How does this relate to the original projected timeline?

We have identified concrete problems to work on for the project. We hope that our continued effort will result in a research paper and a few other papers in progress by the end of next year, in accordance with the original timeline. We give more details on each concrete problem below:
Q1. Functoriality of Serre weights and the Breuil-Mezard conjecture: Despite a lot of research on Serre weights and the Breuil-Mezard conjecture for general linear groups, we only begin to grasp the problem for other groups (Gee-Herzig-Savitt 2017, Koziol-Morra 2018). We will study the problem relative to the change of groups, for example for unitary groups in n variables, following the methods of endoscopy and establish a solid series of examples of Langlands functoriality in the mod p and p-adic setting.
Q2. Derived duality for mod p smooth and p-adic Banach reps: This is to generalize the duality for locally analytic representations (Schneider—Teitelbaum, 2005) and smooth representations (Kohlhasse, 2017) for p-adic reductive groups to Banach representations in the setup of derived categories. This will be particularly interesting since will make possible to unify the various notion of duality already existing in the literature into a new, more effective one.
Q3. Scholze's functor w.r.t. duality and parabolic induction: Scholze's functor (Scholze, 2015) has been a groundbreaking construction in the study of the mod p and p adic Langlands program, due to the geometric construction. Nevertheless many basic properties remain far from being understood. We will address how the functor interacts with the representation-theoretic operations appearing in Q1 and Q2, which are necessary in the context of classical Langlands functoriality such as duality and endoscopy. This will be the most ambitious and groundbreaking part of the project, since it will relate the previous Q1 and Q2 within the world of Galois representation.

2) Indicate how much money has been spent to date. How much do you anticipate spending?

Shin spent approx. $3500 for his trip to France in May 2018. We anticipate that Morra and co-PI's Herzig and Schraen will visit Berkeley some time in Spring 2019. The expected budget is $5000. All PIs and co-PIs plan to meet again at American Institute of Mathematics in San Jose and at UC Berkeley in August 2018; we plan to spend the rest of the grant at that time.

3) What remains to be done for this project? When will the project be completed?

Let us comment on some initial attempts we will make regarding the three questions above. For Q1, we will investigate the transfer of K-types and mod p Satake isomorphism under Langlands functoriality. Note that the transfer of K-types has been worked out in very explicit terms in the 90's by work of Rogawski and Blasco in low dimensional cases (n<4), since, the knowledge of Langlands functoriality was limited to a small number of p-adic groups. The establishment of classical Langlands functoriality for general reductive groups(S. W. Shin), and the first result of mod p functoriality in small rank (S. Morra) give strong evidence that our conjectures on functoriality in arbitrary dimension is within reach on the short term. Q2 Comparisons results for arithmetic properties of locally analytic, mod p and Banach space representation of reductive groups have been extensively studied by Schraen and Breuil. Their techniques use some tools coming from Lazard's result on Noetherian-ness of Iwasawa algebras of compact p-adic Lie groups, which are also at the heart of Schneider and Teitelbaum (resp. Kohlhase) duality theorems in the locally analytic duality (resp. smooth duality). We believe this is far from being a coincidence and we are confident our insight will let us achieve Q2. in a timeframe of 1-2 years. The key to Q3 will be a far reaching generalization of Johannson-Ludwig's construction of a certain quotient of the Lubin-Tate tower (Johannson-Ludwig, 2017) from GL(2) to GL(n) for arbitrary n>1, using this time Rapoport-Zink spaces with extra structures, and their quotients with respect to endoscopic groups.

4) Comment on the collaborative nature of the project. Highlight aspects that have fostered continuing relationships between French institutions and UC campuses.

The projects above have both a concrete nature and a broad scope. This means we will need full and constant interactions between all the members of the projects, between France and Berkeley, since everyone has a unique specialty to contribute. The concrete nature consists in the precise strategies we have to achieve them: each discussion between us will produce effective progress in producing the final publications. Extended visits in France and UC Berkeley by the members will be absolutely crucial to guarantee the success of our proposal, and the France-Berkeley fund is essential resource we are relying on to achieve our mathematical breakthrough. The time which is usually needed for achieving mathematical project -especially when ambitious as those above- ranges from 2 to 3 years. For this reason the collaboration that started in Oct. 2017 will be just the very beginning of a series of exchanges and collaborative projects between us that will keep us occupied for at least 4-5 years, and a promising range of further perspectives yet to be explored.

5) Will this project result in a publication? (Indicate form of publication, if possible.)

We expect to finalize the first paper of our project in August 2019, when all members of the team will be in the same place. (Note that a research paper in mathematics is typically long, ranging from 20 to 100+ pages. So it takes a long time to finish each paper.) The solution of each problem we proposed above merits a decent publication, and we expect to produce two to four papers as the outcome of our project in a few more years, and certainly more in a later time considering the wide horizon of perspective our discovery will lead to.

Huaijun ZHOU, Dept. of Animal Science, UC Davis
Elisabetta GIUFFRA, GABI (Genetique Animale et Biologie Integrative), INRA
Paving the Way for the FAANG International Consortium Initiative (Functional Annotation of Animal Genome)

INTERIM REPORT Start Date: January 2017

1) What is the current status of the project? What has been achieved? How does this relate to the original projected timeline?

There are many communications between Zhou lab and Giuffra lab regarding to FAANG core assays including ChIP-seq, ATAC-seq and Hi-C assays to optimize conditions for different tissues in livestock. A post-doctoral trainee from UC Davis has finished Hi-C training in both laboratory technique and bioinformatic analysis early 2018. The Hi-C assay has been tested in chicken liver and spleen at Zhou lab and is expected to generate preliminary results soon. Due to significant research activities in both Zhou and Giuffra labs in 2017, the project has been extended for another year until the end of 2018.

2) Indicate how much money has been spent to date. How much do you anticipate spending?

The current balance is $10,080 and we will expect to use all of remaining fund.

3) What remains to be done for this project? When will the project be completed?

Dr. Zhou is planning to visit INRA on October 2018 and a graduate student from INRA will have ChIP-seq training at UC Davis on November and Dr. Giuffra will visit UC Davis around December 2018. we expect to finish the project by the end of 2018.

4) Comment on the collaborative nature of the project. Highlight aspects that have fostered continuing relationships between French institutions and UC campuses.

This collaboration takes advantage of expertise of each lab at both UC Davis and INRA. In this project, Dr. Giuffra lab has expertise in Hi_C assay and analysis and Dr. Zhou lab has expertise in ChIP-seq assays in different tissues and histone modification marks and bioinformatic analysis by integrating omic-assays.

5) Will this project result in a publication? (Indicate form of publication, if possible.)

A potential joint publication in a peer-reviewed journal is being considered.

Marion FOURCADE, Dept. of Sociology, UC Berkeley
Régis GOUGEON, Institut Universitaire de la Vigne et du Vin (UIVV), Université de Bourgogne
The Influence of Academic Research on the Development and Construction of the Winemaking Regions of California and Burgundy (20th-21st century)

FINAL REPORT Start Date: December 2016

1) Describe the work accomplished, in relation to the original project description.

In May 2017 we had a very successful workshop at UC Berkeley, bringing together scholars from Berkeley, UC Davis and the University of Burgundy, from across the social sciences (history, sociology), and wine sciences (chemistry, geomorphology). We also had some wine industry participants. In addition, a PhD student in geomorphology from the University of Burgundy, Catinca Gavrilescu, spent one month at UC Berkeley and UC Davis (May-June 2017), where she interacted with faculty and conducted archival research (UC Davis wine library) and interviews with wine makers in the Napa Valley. Finally, Alex Barnard, a sociology PhD student at UC Berkeley, traveled to Dijon for three weeks of archival research and interviewing in June 2018. He traveled through the region (both by car and by bike) to better understand the context, history, and presentation of the region. He also attended events that are part of the yearly "Climats de Bourgogne" series, such as public lectures and expositions. He conducted extended visits to seven vineyards and had in-depth conversations with their owners and / or wine scientists employed there. These contacts will be useful in any continuation of the project. Finally, he began an analysis of the final reports filed by students of the National Diploma of Œnology. This included compiling basic information about 700 reports from 1989 to 2016, and coding around 300 for the particular processes, interventions, and outcomes they concerned. This has allowed him to identify some basic trends in the subjects and goals of academic research over time, which we hope to will lead to a collaborative article in the future.

2) Give the names and ranks of all participants in the project.

Mark Anderson (Professional)
Mike Anderson (Professional)
Alexander Barnard (GS, Berkeley)
Alissa Aron (GS, Davis)
Peter Brantley (Library/online strategy, Davis)
Axel Borg (Librarian, Davis)
Paul Duguid (Lecturer, Berkeley)
Rebecca Elliott (GS, Berkeley, now faculty)
Marion Fourcade (Professor, Berkeley)
Catinca Gavrilescu (GS)
Régis Gougeon (Professor, Univ. Burgundy)

Olivier Jacquet (Senior researcher, Univ. Burgundy)
Daniel Kluttz (GS, Berkeley)
Anthony Lynch (Professional)
Richard Mendelson (Faculty, Berkeley)
Maria Nikolantonaki (Professor, Univ. Burgundy)
David Michalski (Lecturer/Librarian, Davis)
Vincent Sauton (Professional)
Thibaut Scholasch (Professional)
John Trinidad (Professional)
Andrew Waterhouse (Professor, Davis)

3) List all publications resulting from this project. Include titles and issues/dates.

Fourcade/Elliott/Jacquet: article in preparation for submission to *American Journal of Sociology*.

We hope to start a new article collaboration with Alexander Barnard, following his visit to the University of Burgundy in June 2018.

4) Comment on the collaborative nature of this project, highlighting aspects that have fostered continuing relationships between French institutions and UC campuses. Will future collaboration occur as a result of this project?

Further collaborations are being pursued between the University of Burgundy and the UC Berkeley and UC Davis libraries to measure the impact of academic training in wine sciences on neighboring vineyards, such as Oregon (Oregundy Project). Fourcade (UC Berkeley) and Jacquet (University of Burgundy) are continuing their collaboration on the comparative history on wine classifications in Burgundy and Napa. The University of Burgundy graduate student, Catinca Gavrilescu, is planning a future visit to UC Davis, where she made some contacts during her stay in 2017. Fourcade to visit UIVV at the University of Burgundy to continue the collaboration and plan new publication project.

Richard Koci HERNANDEZ, School of Journalism, UC Berkeley
Valérie JEANNE-PERRIER, CELSA, Université Paris Sorbonne
Digital Storytelling Workshop

FINAL REPORT

Start Date: October 2016

1) Describe the work accomplished, in relation to the original project description.

The initial proposed workshop and conference on digital storytelling, titled "VR and the News: What to Expect" took place between Berkeley and CELSA, in Paris on May 19, 2017. Professor Richard Koci Hernandez along with three graduate students (Nani Walker, Lucas Waldron and Peter Bittner) were part of the UC Berkeley contingent. An article about the CELSA conference was featured in Les Inrocks, one of the trendiest cultural magazines in France: http://www.lesinrocks.com/2017/06/14/actualite/medias-actualite/realite-virtuelle-quel-avenir-pour-le-journalisme-11955254/. Additionally, UC Berkeley hosted a visiting cohort from CELSA in December 2017. The group from CELSA re-joined their Berkeley counterparts from Graduate School of Journalism to participate in the launch of the FHL VIVE Center for Enhanced Reality, a multi-disciplinary research center for the advancement of augmented and virtual reality (AR/VR). The program featured a series of presentations on various AR/VR technology research and applications from faculty across campus including Engineering, Journalism, Theater, Dance, Art Practice, Architecture and New Media. The event also included a panel discussion with industry partners and hands-on demos. Professor Richard Koci Hernandez from the Berkeley cohort was a co-host and panelist. The team from CELSA/Berkeley spent the rest of their time incubating a collaborative project based on early conversations during the initial workshop in Paris: an immersive VR Experience that the team continues to collaborate on and hope to make a reality, *The Living Room: Have you ever wondered what population growth feels like? A VR Immersive Experience*.

2) Give the names and ranks of all participants in the project.

RICHARD KOCI HERNANDEZ, Associate Professor, New Media, UC Berkeley Graduate School of Journalism
VALERIE JEANNE PERRIER, Professor-Researcher, CELSA Paris-Sorbonne
MARIE DOEZEMA, Professor-Researcher, CELSA Paris-Sorbonne
NANI S. WALKER, Documentary filmmaker, AR/VR producer, Graduate Student, UC Berkeley Graduate School of Journalism
PETER BITTNER, Documentary filmmaker, AR/VR Graduate Student, UC Berkeley Graduate School of Journalism
LUCAS WALDRON, Multimedia Journalist, Graduate Student, UC Berkeley Graduate School of Journalism

ESTELLE WALTON, Documentary filmmaker and author, CELSA
AMANDA JACQUEL, Reporter, video-photographer, and author, CELSA
CLARA GRIOT, TV and web videast, author, editor, CELSA

3) List all publications resulting from this project. Include titles and issues/dates.

Initial press write-up: *LesInRocks*, 6/14/17
http://www.lesinrocks.com/2017/06/14/actualite/medias-actualite/realite-virtuelle-quel-avenir-pour-le-journalisme-11955254/

4) Comment on the collaborative nature of this project, highlighting aspects that have fostered continuing relationships between French institutions and UC campuses. Will future collaboration occur as a result of this project?

There is no doubt that a strong collegial and professional bond emerged during the exchange with both students and professors. Murmurs of "How do we continue this exchange?" and "We will make it happen!" echoed in the halls. In a more concrete exchange, we have already committed to building the exchange of knowledge and technical expertise on digital storytelling and specifically the emerging virtual reality and augmented reality landscape via further exchanges. Professor Richard Koci Hernandez has initiated a proposal to provide VR headsets to CELSA in order to advance the institutions foray into this area. Additionally, The collaborative nature of the project — two years since the initial grant — continues. We are in conversations with HTC VIVE to explore the next steps in creating and funding the VR Immersive experience *The Living Room*, which the team of students incubated during the FBF sponsored workshop and are in plans to set up a more concrete and continuing exchange program between the institutions.

5) Give a final accounting of how the France-Berkeley Fund award was spent. Do you envision soliciting additional outside funding for this or related projects in the future, and if yes, from where?

A ledger of the expenses is attached. We returned $1,206.21 of unused funds. We will be seeking additional funding from HTC Vive for the completion of the collaborative VR experience *The Living Room*.

MAY, 19
10h00
Grand Amphithéâtre
Celsa - Sorbonne

VR and the NEWS... What to expect?

Come to explore the future of visual storytelling with:

Richard Koci Hernandez
Visual storyteller and assistant professor of new media at UC Berkeley School of Journalism

Arnaud Dressen
CEO and Founder at Wonda VR/Honkytonk Films

Maëva Poulet
Journalist, CELSA Alumna, and Researcher on VR and journalism

Ludovic Fossard
Foundere at Découpages Production audiovisuelle

Berkeley Journalism
UC BERKELEY GRADUATE SCHOOL OF JOURNALISM

CELSA
PARIS-SORBONNE

Tsu-Jae KING LIU, Dept. of Electrical Engineering and Computer Sciences, UC Berkeley
Louis HUTIN, Silicon Components Division, Université Grenoble-Alpes / CEA-Leti
Hybrid CMOS/NEMS Technology for Energy-efficient Electronics

FINAL REPORT Start Date: July 2016

1) Describe the work accomplished, in relation to the original project description.

This project included three research tasks: i/ CMOS/NEMS process development, ii/ Hybrid circuit design and fabrication, iii/ testing and benchmarking. The first task consisted in establishing a robust route for integrating NEMS at CEA-Leti on top of 200mm CMOS wafers purchased from STMicroelectronics. In particular, the NEMS were defined in a layer of silicon transferred by wafer bonding, then connected to the underlying copper interconnects using a single metallization step. This task as defined in the original plan was successfully completed, after having notably solved pre-existing issues with patterning the NEMS switches down to aggressive dimensions (50nm gaps with aspect ratio > 3:1) and validating a metallization scheme suitable both for Si and Cu. The process robustness was also enhanced along the way concerning the management of bonding defects and risk of localized Cu exposure (and hence tool contamination). A separate process flow was defined for the purpose of locally releasing "standalone" switches embedded in the interconnect layers. The nature and thickness of the hard mask deposited at CEA-Leti was defined on the basis of a study on etch rates and etch selectivity at the Marvell Nanofabrication Laboratory at UC Berkeley. Samples were provided and the first release attempts were performed during a visit of Giulia Usai (CEA-Leti) to UCB in December 2017. Unforeseen issues appeared regarding plasma etch residues preventing proper device operations. The two groups have been collaborating since then to analyze and find a way to eliminate these residues.

The second task covered the simulation, dimensioning, layout and fabrication of hybrid circuits. A first one-week visit from Urmita Sikder (UCB) took place at CEA-Leti in July 2016 in order to adapt pre-existing designs of vertical "interconnects"-based switches to the Design Rule Manual (DRM), i.e. define design parameters in compliance with the constraints of the technological route at STMicroelectronics (130nm node) while preserving the intended functionality. Two basic structures were identified to serve as the basis of a parametrizable cell (PCell). The static pull-in voltage of each design variation was validated using Coventor MEMS+ (Finite Element Method). Giulia Usai and Louis Hutin (CEA-Leti) visited UCB for one week in January 2017. During this visit, the full functionality of these devices, including reprogrammability, was validated by time-domain simulations using Matlab. In addition, layout specifications of the hybrid CMOS+Si NEMS circuits were defined in agreement with the DRM. Some of the work performed as part of these design/simulations studies has eventually led to joint publications at the IEEE S3S 2017 and IEEE EDTM 2018 Conferences.

From the initially anticipated date of November 2016, the tape-out was postponed by several months due to the fact that the mask-set design was a Multi-Project-Wafer (MPW) shared by a number of users external to this project. The layout was finalized at CEA-Leti, the files submitted in March 2017 and validated by the CMOS processing fab in early May 2017. The embarked designs included "standalone" switches embedded in the interconnect levels, and

small hybrid circuits such as non-volatile SRAMs and NEMS-based Content-Addressable Memory.

The first CMOS wafers were available at CEA-Leti in September 2017. Some of these were dedicated to the standalone Cu switches, and needed some minor post-processing at CEA-Leti (hard mask definition and patterning) prior to being sent to UCB for release and electrical testing. The samples were ready in time for a second visit by Giulia Usai (CEA-Leti) at UCB in December 2017 (not funded by FBF). There, it was found that a large concentration of plasma etch residues, along with unexpectedly high Vapor HF etch rates were preventing the devices from operating properly. Morphological and physico-chemical characterization of the switches after etching (Focused Ion Beam + Cross-Sectional Scanning Electron Microscopy, Energy-Dispersive X-Ray Spectroscopy elemental mapping) was performed both at UCB and CEA-Leti, aiming at identifying the nature of the residues. Solutions are currently being tested now to overcome this issue.

The other wafers have stayed at Leti for full fabrication of the Si NEMS and their connection to the underlying CMOS. Owing mostly to the tape-out delay, the full fabrication of this batch could not be completed before the end of this project. This obviously had a direct impact on the completion of the third task, which would have been testing and benchmarking of the obtained hybrid circuits. Note however that the benchmarking methodology and associated optimization guidelines were addressed and refined concomitantly with the design in task ii/. This fabrication work has carried on regardless, as it is the focus of Giulia Usai's PhD thesis, co-supervised by Prof. Tsu-Jae King Liu (UCB).

2) Give the names and ranks of all participants in the project.

• Urmita Sikder, Graduate Student (UC Berkeley)
• Tsu-Jae King Liu, Professor (UC Berkeley)
• Giulia Usai, Graduate Student (Univ. Grenoble Alpes, CEA-Leti)
• Jose-Luis Muñoz Gamarra, Postdoctoral Researcher (Univ. Grenoble Alpes, CEA-Leti)
• Louis Hutin, Research Engineer (Univ. Grenoble Alpes, CEA-Leti)
• Thomas Ernst, Research Director (Univ. Grenoble Alpes, CEA-Leti)

3) List all publications resulting from this project. Include titles and issues/dates.

A first abstract was jointly submitted to the IEEE S3S Conference, which reports on the joint modelling work for dimensioning switches which should be both non-volatile and reprogrammable at the operating voltage fixed by the underlying CMOS circuitry.
A second joint abstract was submitted to the IEEE EDTM Conference, reporting on the optimization of the energy-delay product of NEM switches embedded in the metallization layers and used as reconfigurable interconnects.
• G. Usai, L. Hutin, U. Sikder, J.-L. Muñoz Gamarra, T. Ernst, T.-J. King Liu, M. Vinet, "Balancing pull-in and adhesion stability margins in non-volatile NEM switches", IEEE SOI-3D-Subthreshold Microelectronics Technology Unified Conference (S3S), 16-19 Oct. 2017, Burlingame, CA, USA (DOI: 10.1109/S3S.2017.8309215)
• U. Sikder, G. Usai, L. Hutin, T.-J. King Liu, , "Design Optimization Study of Reconfigurable Interconnects", IEEE Electron Devices Technology and Manufacturing (EDTM) Conference, 13-16 March 2018, Kobe, Japan

4) Comment on the collaborative nature of this project, highlighting aspects that have fostered continuing relationships between French institutions and UC campuses. Will future collaboration occur as a result of this project?

The purpose of Urmita Sikder's visit to Grenoble in July 2016 was to adapt 3D models of vertical switches (previously developed at UCB using Coventor MEMS+) to CEA-Leti/ST's process flow and design rules, adjust the switch designs and validate their functionality using transient simulations in Matlab Simulink. The collaboration with the Leti team led to helping fix a bug in Coventor MEMS+ related to modeling of the adhesion force, corrected in the current software release. The specifications of the layout were also defined during this visit. In January 2017, Giulia Usai and Louis Hutin traveled to UCB. The aim was to finalize the parametrizable cells (Pcells) generation rules, the layout of the CMOS-level circuits and further validate stress-tolerant designs of the vertical, standalone Back-End-Of-Line (BEOL) switches. This was also carried out efficiently during the timeframe of the visit, and enabled the team to submit their contribution to the MPW mask-set in time for the March deadline. It was in both cases a privileged occasion for young research scholars to exchange, share technical knowledge and learn to work with one another. In December 2017, Giulia Usai returned to UCB with post-processed samples for releasing and testing the BEOL switches. She and Urmita Sikder have worked together for a week, with daily reporting to their PIs, in order to find adequate etching conditions and troubleshoot for switch malfunctions. Both graduate students have since then stayed in contact with monthly teleconferences to follow up on this task, despite the project coming to an end.

In October 2016, Giulia Usai, previously a M. S. student, returned to the group in CEA-Leti as a PhD student, co-advised by Prof. King Liu for a duration of three years. Even if the full fabrication and testing of the hybrid circuits outlast the duration of the FBF project, the two groups will pursue their collaboration in the framework of Ms. Usai's PhD thesis. On the Leti side, the impetus of this project was critical to making the CMOS/NEMS activity grow beyond a one-shot project in evaluation phase. It benefits now from a robust process route, excellent technical input from a pioneering research group, and seems to be on track towards what we hope will be a successful first experimental proof-of-concept. This is obviously a fertile ground for a continued collaboration.

5) Give a final accounting of how the France-Berkeley Fund award was spent. Do you envision soliciting additional outside funding for this or related projects in the future, and if yes, from where?

2251.85 USD were spent to cover the cost of Urmita Sikder's trip to Grenoble in July 2016. 8462.53 USD were spent during Giulia Usai's and Louis Hutin's trip to UC Berkeley in January 2017. We received a no-cost extension of the project to March 31, 2018, so that the remaining 1083.62 USD could be used to cover for cleanroom nanofabrication costs, in particular to develop the last module of the first research task. Giulia Usai visited UCB after attending a conference in the Bay Area in December 2017, in order to bring the first samples and assist with post-processing and release of the switches. The travel costs in that case were covered by CEA-Leti.

Christopher KUTZ, Dept. of Jurisprudence & Social Policy, UC Berkeley
Ariel COLONOMOS, CERI, Sciences Po Paris
The Value of Life

FINAL REPORT

Start Date: June 2015

1) Describe the work accomplished, in relation to the original project description.

We conducted interviews of French officials and American administrators, have conducted written research, and have written and presented pieces of the project in different venues. We had anticipated hosting a small workshop on the topic, but have not yet done so. Colonomos has published a number of pieces resulting from the project. Kutz's presentations have not yet been submitted for publication.

2) Give the names and ranks of all participants in the project.

Christopher Kutz, Professor of Law, UC Berkeley
Benjamin Chen, former PhD Student, Jurisprudence & Social Policy
Ariel Colonomos, Senior Research Fellow, CNRS, Paris (CERI/Sciences Po)
Amélie Férey, Doctoral Student, Sciences-Po, Paris

3) List all publications resulting from this project. Include titles and issues/dates.

- Ariel Colonomos, « Proportionality in Warfare as a Political Norm », in Jens David Ohlin, Larry May and Claire Finkelstein, OUP, 2017, p.217-240.
- Ariel Colonomos, "A Globalist Approach to the Dilemmas of Hostage Taking" in Michael Gross, Tamar Meisels (eds.), *Soft War - The Ethics of Unarmed Conflict*, Cambridge, Cambridge University Press, 2017
- Ariel Colonomos, *Le prix de la vie*, book manuscript, 2018.

4) Comment on the collaborative nature of this project, highlighting aspects that have fostered continuing relationships between French institutions and UC campuses. Will future collaboration occur as a result of this project?

The project began as highly collaborative, with extensive joint discussions and planning for the project, and was grounded in prior collaborations. Ariel Colonomos's work, proceeded to publication more swiftly, while Kutz gave several presentations on the topic, but was diverted to other writing projects. We hope to publish jointly still a fully collaborative text,but found the funding and the already existing conversations highly useful and productive.

5) Give a final accounting of how the France-Berkeley Fund award was spent. Do you envision soliciting additional outside funding for this or related projects in the future, and if yes, from where?

We spent funds on the following:
- A research trip by Colonomos to the USA (Virginia) to interview Amerlcan military officials
- Paying graduate student researchers Chen and Férey for research support (though Férey never received reimbursement for some o her research expenses - we would like to pursue this matter.)
- A trip by Kutz to France (2016) to work with Colonomos on the project
We have some remaining finds, which we hope to use for a small workshop.

Brent MISHLER, Dept. of Integrative Biology, UC Berkeley
Wilfried THUILLER, Laboratoire d'Ecologie Alpine (LECA), Université Grenoble Alpes
Phylogenetic diversity, endemism, and conservation of Mediterranean Basin flora

FINAL REPORT

Start Date: July 2016

1) Describe the work accomplished, in relation to the original project description.

The goal of this grant was to initiate a new collaboration to further synthesize phylogenetics and conservation, by bringing together leaders in this field to develop a novel framework to study plants of the Mediterranean Basin, one of the world's most diverse and threatened regions. We also want be able to use the Mediterranean Basin in a comparative study with the Californian and other Mediterranean-type floristic hotspots. Long term goals were to inform conservation priorities from local to international efforts, such as the new 'Intergovernmental Platform on Biodiversity and Ecosystem Services' (IPBES). We proposed a workshop to bring together primarily Berkeley and French researchers to develop a plan to accomplish this goal including collating data, starting preliminary analyses, and planning future grant applications for a full-scale Mediterranean flora project. Because studying diversity in the Mediterranean Basin is more challenging than in other Mediterranean floristic zones since it is spread across multiple countries, we needed to also include researchers from neighboring countries to France (we received advance permission from the France-Berkeley Fund office to do this). The workshop was held at CNRS in Grenoble, France Grenoble, Sept. 19-21, 2016. The first day included presentations giving background about Mediterranean studies, spatial phylogenetics, and the goals of the workshop. Participants made presentations about the studies they currently had underway and their sources of data. The second day we discussed how we could initiate preliminary studies using existing data to serve as justification for further funding. The third day was devoted to discussing possible sources of funding to support grant proposals to fill in data gaps (both spatial and genetic), do a complete analysis of the western Mediterranean region, and compare it to the other four Mediterranean climate regions of the world. Talks related to these topics were presented at the meeting of Annual meeting of the GDR Théorie et Modélisation de la Biodiversité that happened immediately after our workshop.

A follow-up afternoon workshop was held at the University of Seville, Spain, Feb. 3, 2017, in association with the XIV MEDECOS and XIII AEET Meeting. This is a professional gathering of ecologists who study Mediterranean -climate ecosystems, and many of the same participants were present. We discussed progress in data gathering, and problems that were being encountered with existing data sets. We also discussed types of analyses that could be possible with the data available currently, and funding prospects. Since these workshops we have begun the process of data assembly and cleaning. We have found that there are difficulties in cleaning the data, such as matching taxonomic names across the multiple data sources from different countries and identifying which taxa are native. So

the work has gone slower than we hoped, but we have made progress and are optimistic that we will be able to carry out a preliminary analysis soon. In the meantime we have worked on developing the methods further, in particular algorithms for studying different kinds of endemism, and applying the results to conservation.

2) Give the names and ranks of all participants in the project.

Brent D. Mishler, Professor, Integrative Biology, UC Berkeley (USA)
Wilfried Thuiller, Senior Research Scientist, CNRS at Laboratoire d'Ecologie Alpine (Grenoble, France)
Andre Thornhill, Postdoc, Integrative Biology, UC Berkeley (USA)
Laura Pollock, Postdoc, CNRS at Laboratoire d'Ecologie Alpine (Grenoble, France)
Cristina Roquet, Postdoc, CNRS at Laboratoire d'Ecologie Alpine (Grenoble, France)
Marta Carboni, Postdoc, CNRS at Laboratoire d'Ecologie Alpine (Grenoble, France)
Frederic Medail, Professor, Institut méditerranéen de biodiversité et d'écologie (Marseille, France)
Bruno Fady, Directeur de recherches INRA, Ecologie des Forêts Méditerranéennes (Avignon, France)
Virgile Noble, Botaniste-cartographe, Conservatoire botanique national méditerranéen (Hyères, France)
Miguel Verdu, Researcher, Centro de Investigaciones sobre Desertificacion (Valcencia, Spain)
Renske Onstein, Researcher, German Centre for Integrative Biodiversity Research (Leipzig, Germany)
Pablo Vargas, Investigador Científico, El Real Jardín Botánico (Madrid, Spain)
A. Marcial Escudero, Postdoc, University of Seville (Spain)
Maria Begonia Garcia, Tenured Scientist, Instituto Pirenaico de Ecología (Zaragoza, Spain)
Rafael Molina Venegas, Postdoc, University of Bern (Switzerland)
Jan Smycka, doctoral student, CNRS at Laboratoire d'Ecologie Alpine (Grenoble, France)
Sebastien Lavergne, Research Scientist, CNRS at Laboratoire d'Ecologie Alpine (Grenoble, France)

3) List all publications resulting from this project. Include titles and issues/dates.

Talks given on spatial phylogenetics of Mediterranean climate regions at a professional meetings:
B.D. Mishler 2016. Spatial phylogenetics —combining molecular phylogenetics with collection-based spatial data to interpret evolutionary and ecological history, as well as better inform conservation decisions. Annual meeting of the GDR Théorie et Modélisation de la Biodiversité. Grenoble, France. (with A.H. Thornhill).
B.D. Mishler 2017. Richness and endemism in the California flora measured using both species-based and phylogenetic approaches. XIV MEDECOS and XIII AEET Meeting. University of Seville, Spain (with D.D. Ackerly, B.G. Baldwin, A.H. Thornihill and W. Freyman).
R. Scherson 2017. Spatial phylogenetic of the native vascular flora of Chile. XIV MEDECOS and XIII AEET Meeting. University of Seville, Spain (with B.D. Mishler, A.H. Thornihill, W. Freyman, P Pliscoff, B.G. Baldwin, and D.D. Ackerly).

B.D. Mishler 2017. A new spatial phylogenetic method for distinguishing neo-endemism, paleoendemism, and meso-endemism: range-weighted branch length difference (RWiBaLD). International Botanical Congress, Shenzhen, China (With N.Knerr, J.T. Miller, and S.W. Laffan).
M. Kling 2018. Future priorities for conserving the evolutionary diversity of the California flora. Second Annual Digital Data in Biodiversity Research Conference. Berkeley, California (With B. Mishler, B. Baldwin, D. Ackerly, and A. Thornhill).
L.J. Pollock, W. Thuiller. 2018. Conserving the tree of life into a warmer future. Invited Symposia Talk at the International Biogeography Society Meeting. Evora, Portugal.

4) Comment on the collaborative nature of this project, highlighting aspects that have fostered continuing relationships between French institutions and UC campuses. Will future collaboration occur as a result of this project?

This grant was highly successful in building a new community of researchers who have not previously worked together on this topic. It built bridges between several French institutions and UC Berkeley. These researchers have increased their communications with each other, which led to the second meeting in Spain, and continues now. The group remains committed to continued collaboration in the future. Future funding possibilities were discussed at both meetings we have held so far. It became clear that changing priorities in EU funding programs mean that there is not a good fit at present between our goals and current calls for proposals. We are continuing to monitor the EU funding programs and still intend to pursue this when the right program opens.

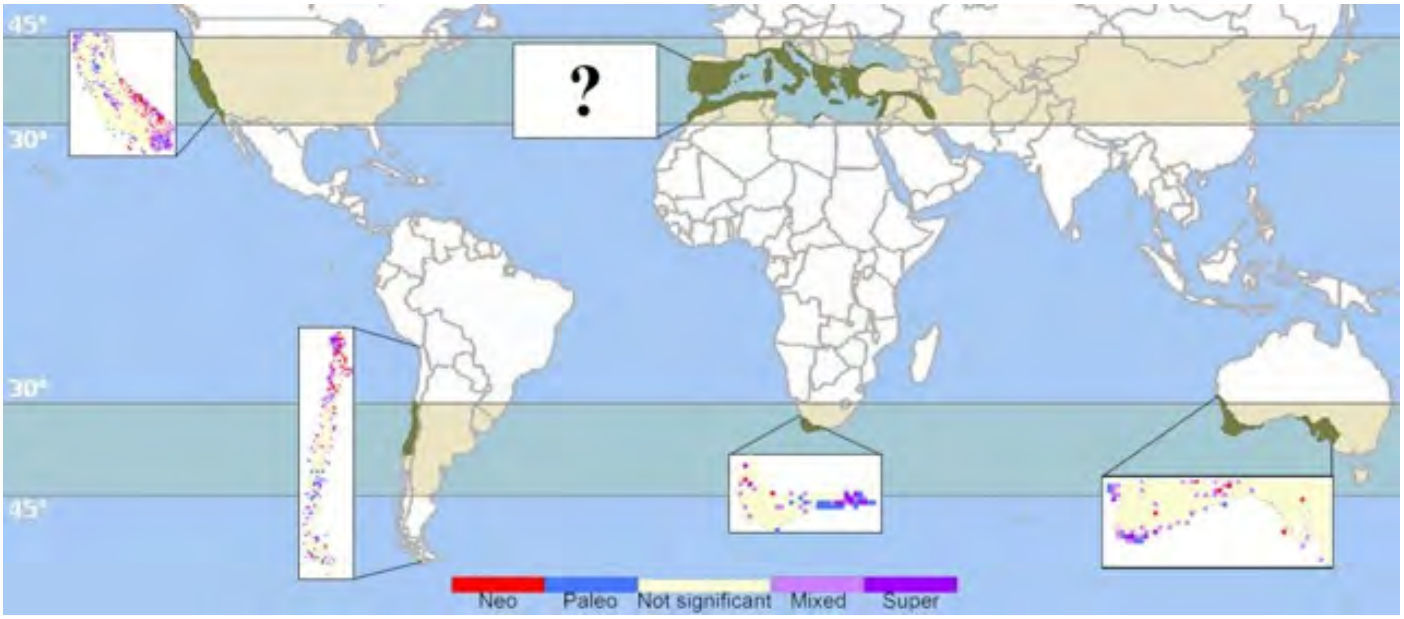
5) Give a final accounting of how the France-Berkeley Fund award was spent. Do you envision soliciting additional outside funding for this or related projects in the future, and if yes, from where?

Below is a table summarizing the original budget categories, and what was spent. As discussed in the item above, we are waiting for a suitable biodiversity-oriented program to become available in the EU's European Research Council. When we do submit, we plan to look for supplementary funding from the US National Science Foundation's International Program.

_____
Travel costs for Brent Mishler and Andrew Thornhill (including housing):
Budgeted Spent
$5,200 $5,447.78
Workshop expenses (including food):
Budgeted Spent
$1,160 $2,616.49
Travel European workshop participants (including housing):
Budgeted Spent
$5,640 $3,916.57

_____
Totals
Budgeted Spent
$12,000 $11,980.84

_____



The five Mediterranean hotspots of the world showing preliminary spatial phylogenetic endemism results from four of the five zones. The Mediterranean Basin is the only hotspot without results for comparison, and was the target for this collaboration.

Linda MORRIS, Dept. of Humanities, UC Davis
Ronald JENN, Faculté de Langues, Université de Lille
The "French marginalia" of Mark Twain's Personal Recollections of Joan of Arc (1895-96) at Berkeley: Patriotism without Borders.

FINAL REPORT Start Date: August 2016

1) Describe the work accomplished, in relation to the original project description.

Every single goal of the project outlined in the timeline has been achieved.
- Starting August 1st 2016, Morris and Jenn, with the assistance of Harrington, completed the first round of research at the Mark Twain Papers in Berkeley. All of the marginalia in the 7 surviving copies of Mark Twain's books were studied and transcribed, deciphered sometimes with the help of the archivists, for a total of close to 100 pages worth of transcription.
- In the Fall of 2016 Morris and Jenn wrote up their preliminary findings and drafted an article that was published in the Spring 2017 issue of the Mark Twain Journal. Those early findings were shared with the other scholars involved in the Joan of Arc panel of the Quadriennal Conference on the state of Mark Twain studies that then take place in Elmira August 2017 so they could take them into account for their presentation.
- With the assistance of Victor Fischer of the Mark Twain Papers, Berkeley and Patrice Théry, of Lille, Linda Morris and Ronald Jenn created a 10-minute-long documentary based on those findings. The film is in French with English subtitles. It was first shown as a temporary exhibit at Historial Jeanne d'Arc in Rouen (June 6-24) where Linda Morris gave a conference with Ronald Jenn as interpreter (June 8) . The film is now on permanent display on the website of Université de Lille (webTV) and a copy was sent to the Mark Twain Papers.
Because the Elmira conference where the film was also to be shown and a Joan of Arc panel was to be held place early August 2017, we required and were granted a no-cost extension until January 31, 2018.

2) Give the names and ranks of all participants in the project.

- Linda Morris, professor emerita of English at UC Davis, former chair of English, and former director of Womens' Studies (senior scholar). Among other works, Professor Morris is the author of *Gender Play in Mark Twain*.
- Ronald Jenn, Professor of Translation Studies at Université de Lille, France (mid-career scholar) has published articles and book chapters on Mark Twain in/and French translation.
- Paula Harrington (Ph.D. English, UC Davis, Chancellor's Teaching Fellow), director of the Farnham Writers' Center at Colby College, and 2013 Fulbright Scholar in Paris for her project, "Mark Twain and the French" (senior scholar). With Professor Jenn, she is the author of *Mark Twain & France*, published by the University of Missouri Press in 2017.
- Delphine Louis-Dimitrov, Maître de conférences in American literature at Institut Catholique de Paris (junior scholar). Delphine Louis wrote her dissertation and has published on Twain's use of history; she has also been an international visiting scholar at the Elmira College Center for Mark Twain Studies.

3) List all publications resulting from this project. Include journal titles and issues/dates.

- Ronald Jenn & Linda Morris, "The sources and Marginalia of Mark Twain's Personal Recollections of Joan of Arc (1895-96), Spring 2017 issue of The Mark Twain Journal, 55-74.

- Documentary "Mark Twain et Jeanne d'Arc. L'histoire d'une passion." 10 minute long footage retracing the relationship between Mark Twain and Joan of Arc as a historical character and the making of his novel. Victor Fischer of the MTP provided high quality images available nowhere else. The documentary is complete with sound and 3-d effects, off-voice narration and actors reading extracts from Samuel Clemens's letters and some Joan of Arc quotes.
It is now permanently available on Université de Lille's WebTV.
https://live3.univ-lille3.fr/video-culture/mark-twain-et-jeanne-darc-lhistoire-dune-passion.html

Two peer-reviewed American Studies journals, one American, the other French, are to devote a special issue each to Joan of Arc in translation and in American literature and culture, in the wake of the FBF grant with Ronald Jenn and Delphine Louis as co-editors:
- the Fall 2018 issue of American Literary Realism is to publish 5 revised and reviewed versions of the talks given at the JOA panel in at the Elmira Conference (August 2017). The issue is devoted to Mark Twain and Joan of Arc.
- the Fall 2019 issue of Revue Française d'Etudes Américaines is to publish 7 to 9 articles on JOA in American literature and culture (broadly defined) out the 13 proposals that were received from both American and French scholars. (CFPs are closed, editing and peer-reviewing under weigh).

4) Comment on the collaborative nature of this project, highlighting aspects that have fostered continuing relationships between French institutions and UC campuses. Will future collaboration occur as a result of this project?

Université de Lille and Historial Jeanne d'Arc in Rouen have been, throughout the year, frequently in contact with UC Berkeley. It is the making of the documentary that accounts for the bulk of this collaborative activity. Whether it was the director of the film, Patrice Théry, Public Relations people for the making of the posters announcing the film and the June 8 talk by Linda Morris, many people at several levels were involved in this cooperation. Knowledge of the special and unexpected relationship between the American author and the French heroine has been spread and has attracted the attention it deserves. Thanks to the involvement of the Center for Mark Twain Studies in Elmira, N.Y, the collaboration has also reached beyond UC campuses.

5) Give a final accounting of how the France-Berkeley Fund award was spent. Do you envision soliciting additional outside funding for this or related projects in the future, and if yes, from where?

The France-Berkeley Fund award was spent exactly as planned in the outline of the project. With the help of our institutions and our partners, The Center for Mark Twain Studies, Elmira, N.Y., Institut Catholique, Paris, France, as well as Memorial Jeanne d'Arc, Rouen, France, we observed this calendar of expenses: August 2016, Research in Berkeley: 4700 USD; Spring 2017, Talk in Rouen, France: 1600 USD; July 2017, Workshop at Conference: 6100 USD

Khalid MOSALAM, Dept. of Civil Engineering, UC Berkeley
Marc REBILLAT, Process and Engineering in Mechanics and Materials, Arts & Metiers
Open Hardware Platform for Structural Health Monitoring

FINAL REPORT Start Date: December 2016

1) Describe the work accomplished, in relation to the original project description.

The objectives for the project were: i) to start a scientific collaboration between both laboratories, ii) to design and test open hardware prototypes and iii) to formalize a collaborative development space for the open hardware. With respect to these objectives, the project has been successfully completed. In order to achieve the above-mentioned goals, Dr Barthes spent one week in Paris in March 2017 and Dr Mechbal and Rebillat both spent one week in Berkeley in May 2017. These travels were dedicated to the hardware and software design of the prototypes (see Figure 1) and to the organization of open seminaries in both universities (see Figure 3 and Figure 4). In accordance with the original project timeline, two open hardware prototypes have been designed, built, and tested. The remaining issues to be fixed in these prototypes have been identified. Dr Barthes, Mechbal and Rebillat furthermore attended to the International Workshop on Structural Health Monitoring held in Palo Alto in September 2017 where the obtained results have been presented (see Figure 2).

2) Give the names and ranks of all participants in the project.

- MOSALAM Khalid (Professor, UC Berkeley)
- BARTHES Clément (Research Engineer, UC Berkeley)
- MECHBAL Nazih (Professor, ENSAM)
- REBILLAT Marc (Associate Professor, ENSAM)
- CAI Yu (Intern, ENSAM / UC Berkeley)
- GIRALDO Joaquin (Intern, ENSAM)

3) List all publications resulting from this project. Include journal titles and issues/dates.

This project resulted in a publication at the International Workshop on Structural Health Monitoring held in Palo Alto in September 2017. A publication summarizing the project within a peer reviewed international journal is also envisaged.

4) Comment on the collaborative nature of this project, highlighting aspects that have fostered continuing relationships between French institutions and UC campuses. Will future collaboration occur as a result of this project?
As stated above, the project was an opportunity to organize "hands-on" seminaries based on the two prototypes and open to students and staff members of both universities. These one-day seminaries were good occasion to broaden the visibility of the collaboration and to create an emulation and a small community around the project. Now that a proof of concept is available

(the two prototypes) and that a community is gathered, the collaboration will continue, and other sources of funding will be sought and exchanges of students between campuses will be planned.

5) Give a final accounting of how the France-Berkeley Fund award was spent. Do you envision soliciting additional outside funding for this or related projects in the future, and if yes, from where?

The award has been spent with the one week stay of Dr Barthes in Paris in March 2017 and of Dr Mechbal and Rebillat in Berkeley in May 2017. Furthermore more, the award has been used to pay the registrations of Dr Barthes, Mechbal and Rebillat who attended to the International Workshop on Structural Health Monitoring held in Palo Alto in September 2017 where the obtained results have been presented. Additional outside funding will be solicited from both side, either at France, Europe or USA levels depending of the adequation with upcoming call for projects.

Figure 1: Developed Open Hardware Prototype

Figure 2: Dr Rébillat, Mechbal and Barthes attending the International Workshop of Structural Health Monitoring in September 2017

Figure 3: Dr. C. Barthes during a seminar dedicated to the software platform in France.

Dr Mechbal giving a lecture for students at UC Berkeley.

Michael NACHMAN, Museum of Vertebrate Zoology / Integrative Biology, UC Berkeley
Frédéric DELSUC, Institut des Sciences de l'Evolution de Montpellier, CNRS, Université de Montpellier
Convergent molecular evolution and the xenarthran adaptive radiation

FINAL REPORT

Start Date: July 2016

1) Describe the work accomplished, in relation to the original project description.

The France Berkeley Fund was awarded to foster a collaborative relationship between Michael Nachman, his Berkeley postdoc Christopher Emerling, and Frédéric Delsuc in order to study convergent molecular evolution in xenarthrans (armadillos, sloths, anteaters) and other placental mammals related to a range of anatomical and physiological systems. The funding was sought to provide travel costs to allow inter-university visits and to perform whole genome DNA sequencing of a rare subterranean armadillo. Dr. Delsuc visited Berkeley for two weeks between January and February, during which we analyzed results, worked on a manuscript, and made plans for the genome sequencing strategy. In June 2017, we used money from the FBF to sequence DNA samples from an incredibly rare museum specimen of the greater fairy armadillo (Calyptophractus retusus), which represents an important evolutionary lineage for our study. This was in addition to 15 additional genomes that we have sequenced with other colleagues involved in a broader project, and an exon capture experiment that focused on candidate genes in every species of xenarthran. Analyzing this wealth of new genomic data, we have made a number of exciting discoveries related to an alternative melatonin synthesis mechanism, molecular modifications to digging, molecular changes related to novel diets, and the gradual evolutionary reduction of dentition. So far, we have published one paper related to this project, with a second manuscript nearing completion. Besides our results thus far, these genomic resources will undoubtedly allow us to uncover numerous additional signals of convergent molecular evolution between xenarthrans and other mammals.

2) Give the names and ranks of all participants in the project.

Michael Nachman: Director, Museum of Vertebrate Zoology; Professor, Integrative Biology
Frédéric Delsuc: Director of Research, CNRS
Christopher Emerling: Postdoctoral Fellow

3) List all publications resulting from this project. Include journal titles and issues/dates.

Emerling, CA, F Delsuc, MW Nachman. 2018. Chitinase (CHIA) genes provide genomic footprints of a post Cretaceous dietary radiation in placental mammals. *Science Advances* 4(5): eaar6478 (doi:10.1126/sciadv.aar6478)
Selected popular press coverage:
AAAS Science Update (US): http://www.scienceupdate.com/2018/05/insect-8/
Pour la Science (France): https://www.pourlascience.fr/sd/genetique/lheritage-de-nos-ancetresinsectivores-est-inscrit-dans-nos-genes-13865.php

Sciences et Avenir (France): https://www.sciencesetavenir.fr/archeo-paleo/evolution/nos-ancetresinsectivores-ont-laisse-leur-heritage-dans-nos-genes_123993
Xinhua (China): http://www.xinhuanet.com/english/2018-05/17/c_137184470.htm
Bild der Wissenschaft (Germany): https://www.wissenschaft.de/umwelt-natur/wir-insektenfresser/
Muy Interesante (Spain): http://eju.tv/2018/05/comer-insectos-no-es-tan-extrano-lo-hemos-heredado-denuestros-antepasados/
RIA (Russia):
https://elementy.ru/novosti_nauki/433258/Geny_khitinaz_rasskazali_o_rasshirenii_ratsiona_mlekopitayushc hikh_posle_vymiraniya_dinozavrov
Hani (South Korea): http://www.hani.co.kr/arti/animalpeople/ecology_evolution/845201.html
Pieuvre.ca (Canada): http://www.pieuvre.ca/2018/05/16/redecouvrir-lheritage-de-nos-ancetresinsectivores/
Haaretz (Israel): https://www.haaretz.com/science-and-health/MAGAZINE-people-possess-primordialgene-to-digest-insects-1.6094881

4) Comment on the collaborative nature of this project, highlighting aspects that have fostered continuing relationships between French institutions and UC campuses. Will future collaboration occur as a result of this project?

The collaboration fostered a relationship between Dr. Nachman's postdoc (Christopher Emerling) and Dr. Delsuc, such that when Dr. Emerling finished his postdoc in Berkeley, he joined Dr. Delsuc for a postdoc at the Université de Montpellier working on the ConvergeAnt project (https://fdelsuc.wixsite.com/convergeant) funded by the European Research Council. Furthermore, Dr. Delsuc's visit to Berkeley has encouraged him to seek future collaborations with universities in the UC system, and is considering doing a sabbatical at Berkeley or another campus in the years to come.

5) Give a final accounting of how the France-Berkeley Fund award was spent. Do you envision soliciting additional outside funding for this or related projects in the future, and if yes, from where?

Airfare for Dr. Delsuc, Montpellier to Berkeley: $1,274.54
Housing for Dr. Delsuc at UC Berkeley: $1,944.50
Illumina sequencing at the Vincent J. Coates Genomics Sequencing Laboratory (GSL): $7,710.00
Total: $10,929.04
Returned remaining funds: $1,070.96

Emilija PANTIC, Dept. of Physics, UC Davis
Davide FRANCO, Neutrino Group, Laboratoire Astroparticule et Cosmologie
Argon Recoil Ionization and Scintillation (ARIS) Experiment at LICORNE neutron beam

FINAL REPORT Start Date: August 2016

1) Describe the work accomplished, in relation to the original project description.

In order to understand the interactions of signal and backgrounds in liquid argon dark matter searches, independent calibration measurements are required. The Argon Recoil Ionization and Scintillation (ARIS) experiment was developed to precisely measure the response of liquid argon to nuclear and electronic recoils at various electric fields in the energy range of interest to dark matter searches. The ARIS team has delivered the most precise measurement of the scintillation quenching signal from nuclear recoils at zero electric field to date in liquid argon. The data scan a lower energy range for nuclear recoils than has been probed before in literature. The analysis also includes measurements of nuclear recoils and electronic recoils at non-zero fields, using existing models of nuclear and electric-field induced scintillation quenching to form a fully comprehensive description of the behavior of liquid argon in response to ionizing radiation at the energy range of interest to dark matter searches. The paper is currently under review by Physical Review D, and the measurements performed by the ARIS team were used in a dark matter search performed by DarkSide-50 experiment. This analysis was performed on data taken by the ARIS collaboration which consists of research groups from UCLA, UC Davis, Laboratoire Astropar- ticule et Cosmologies in Paris, Institut de Physique Nuclaire Orsay in Orsay and Laboratoire Physique Nuclaire et Hautes Energies.

2) Give the names and ranks of all participants in the project.

Paolo Agnes - student at APC, Sandro De Cecco - researcher, Alden Fan - student, Giuliana Fiorillo- professor, Davide Franco - researcher, Cristiano Galbiati - professor, Claudio Giganti - researcher, Tessa Johnson - postdoc at UCD, George Korga - engineer, Matthieu Lebois - researcher, Liqiang Qi - student, Andrea Mandarano - student, Jeff Martoff - professor, Anyssa Navrer-Agasson -student, Emilija Pantic - associate professor, Alessandro Razeto - researcher, Andrew Renshaw - assistant professor, Quentin Riffard - postdoc at APC, Biaggio Rossi - researcher, Benjamin Schlitzer- student at UCD, Alessandra Tonazzo -researcher, Hanguo Wang - researcher, Yi Wang - student, Andrew Watson - student and Jonathan Wilson - researcher

3) List all publications resulting from this project. Include journal titles and issues/dates.

P.Agnes et al., (ARIS Collaboration), Characterization of liquid argon energy response to nuclear and electron recoils with the ARIS setup, submitted to the Physical Review D, arXiv:1801.06653 (2018).

4) Comment on the collaborative nature of this project, highlighting aspects that have fostered continuing relationships between French institutions and UC campuses. Will future collaboration occur as a result of this project?

In addition to the content of the paper in review, the ARIS collaboration is also working on an analysis of the scintillation pulse shape of nuclear and electronic recoils with the ARIS data at low energies which are currently poorly understood in liquid argon dark matter searches. Hence the ARIS collaboration continues the work. The sensitivity of direct detection dark matter experiments will reach a level where recoils of target atomic nucleus due to cosmic neutrinos become relevant. Improvements beyond that level could be achieved via detectors with directional information. Liquid argon detectors might be able to measure the projection of the recoil track along the detectors' electric field direction but without sense of direction. Hence, a large liquid argon detector with one dimensional directional sensitivity has a potentialto probe dark matter beyond the neutrino level utilizing event distributions in recoil kinetic energy, inferred recoil track angle with respect to the expected average dark matter particle direction, and event time profile along the day. The research groups that are part of the ARIS collaboration will continue collaborative research on this topic.

5) Give a final accounting of how the France-Berkeley Fund award was spent. Do you envision soliciting additional outside funding for this or related projects in the future, and if yes, from where?

The FBF was spent on travel to the LICORNE neutron beam in Orsay, France for exposure of ARIS detector to the neutron beam. More precisely funding was used to support travel of Benjamin Schlitzer,- student at UC Davis, Tessa Johnson - postdoctoral scholar at UC Davis and Emilija Pantic - associate professor at UC Davis. It was also used to support short travel to APC, Paris for Luca Pagani - postdoctoral scholar at UC Davis for training and organization of the future collaborative work. The ARIS project is also supported by the NSF grant and UnivEarthS Labex program of Sorbonne Paris Cit´e. APC and UC Davis groups are actively applying for private and federal funding both in USA and France to support future precision measurements of liquid argon scintillator. We are also all part of ReD collaboration lead by research group at Universita` degli Studi di Napoli "Federico II" which has the same goals but with a different setup.

James SALLEE, Dept. of Agricultural and Resource Economics, UC Berkeley
Mathias REYNAERT, Toulouse School of Economics, Université de Toulouse Capitole
Automobile Emissions Test Manipulation: Implications for Consumer Welfare and the Environment

FINAL REPORT Start Date: July 2015

1) Describe the work accomplished, in relation to the original project description.

The France-Berkeley Fund has allowed us to have three research visits that enabled the authors to interact intensively to increase the quality of the research project. In the first stage (summer 2016) we analyzed a new large scale data set. In the fall of 2016 we developed economic theory to explain the implications of our empirical findings. By the end of 2016 we released and submitted a first working paper combining our insights. We presented this work at numerous seminars in the scientific community during 2016 and 2017 both in the US and Europe. After significant feedback from the scientific community we have revised the working paper and submitted it for peer review. This timeline followed our original proposal to produce a working paper by end of 2016. Additionally, the fund allowed us to continue to collaborate during the revision stage of the project in 2017. While our project was under review at a scientific journal in 2018 we started working on novel projects.

2) Give the names and ranks of all participants in the project.

James Sallee, Assistant Professor
Mathias Reynaert, Assistant Professor

3) List all publications resulting from this project. Include journal titles and issues/dates.

The project resulted in the working paper: "Who benefits when firms game corrective policies?" The paper is currently under peer review.

4) Comment on the collaborative nature of this project, highlighting aspects that have fostered continuing relationships between French institutions and UC campuses. Will future collaboration occur as a result of this project?

The project has fostered a productive research relationship between the two coordinators as well as positive broader connections between UC Berkeley ARE and Toulouse School of Economics. Both researchers presented additional research in the seminar series of the other institution and interacted with other faculty. In particular, Mathis Reynaert was able to visit the Energy Institute at Haas for an extended period of time while visiting Berkeley, which fostered several new academic relationships. The project has also allowed the coordinators to explore new ideas. We have started a novel new project that builds on the themes of the original research, specifically regarding measurement of diesel pollution, and we have outlined an agenda for future collaboration.

5) Give a final accounting of how the France-Berkeley Fund award was spent. Do you envision soliciting additional outside funding for this or related projects in the future, and if yes, from where?

We received $14.000 in funding, of which a little less than $12.000 has been spent up to date. The following research activities have been funded:
- a two-week research visit of project coordinator Mathias Reynaert to UC Berkeley in September 2016
- had a three-day research visit of James Sallee to Toulouse School of Economics in June 2017
- a one-week visit in December 2017 of coordinator Mathias Reynaert to UC Berkeley

Because travel costs ended up being less than expected (in particular, we found good airfare), we did not deplete the budget. Remaining funds have been returned as per the agreement.

Eric STOVER, School of Law, UC Berkeley
Jeremy PERELMAN, École de Droit, Sciences Po
The Hissène Habré Trial: Challenges and Opportunities for Prosecuting International Crimes in National Courts

FINAL REPORT

Start Date: December 2016

1) Describe the work accomplished, in relation to the original project description.

We have adhered closely to aspects of the original project description but also expanded and diverged in two ways. Overall, we have followed the initial proposal closely. We jointly conducted the anticipated desk and field research on the historic trial of Hissène Habré in Senegal. This included engagement of both Berkeley and Sciences Po students in our background research as well as key informant interviews with the local actors who operationalized the trial. Together, Berkeley and Sci Po traveled to Dakar in February 2017 to interview Senegalese lawyers and judges, Chadian victims' rights advocates, local journalists, and international NGOs who helped develop the case and tribunal. Students of Kim Thuy Seelinger (Berkeley) and Sharon Weill (Sciences Po) helped to analyze the qualitative data according to a coding system developed by the Berkeley team. That month, we also co-hosted a workshop at Sciences-Po in Paris to gather experts from practice and academia who have followed the trial or who are leaders in various aspects of international criminal law. Later in 2017, Seelinger and Weill again traveled to Senegal to attend the appeals judgment in the Habré trial and Prof. Weill returned for additional interviews in February 2018. In this way, we have fulfilled all the originally planned activities: desk research, workshop, field research.

We diverged from the original project in one small way and one large way. The minor change is in terms of key personnel: from the project launch, the Berkeley team's effort has been led by Prof. Kim Thuy Seelinger, Berkeley Law Lecturer and Director of HRC's Sexual Violence Program, instead of Mychelle Balthazard. Seelinger studies the prosecution of international crimes in national courts, was directly involved in the Habré trial, and speaks French. She was delighted to partner with Prof. Weill on this project.

The larger change is in terms of deliverable: with the wealth of data and rapport we were gathering, we decided not to pursue just an article. We had enough information and input for a book. Our idea was to collect the perspectives of both the local actors as well as international experts to truly highlight the practical and historical aspects of this case. We submitted a proposal to Oxford University Press and entered contract with Oxford University Press in the summer of 2017. We been co-editing the volume ever since.

So far, we have over two dozen chapter contributions. The book will be divided into three sections: 1 - Historical background and significance of the Habré trial
2 - Perspective chapters from the local lawyers, judges, advocates, journalists, politicians who made the trial happen
3 - Academic analysis of key aspects of the case, putting the trial into greater context of international criminal justice.

It will also include an appendix of key documents and excerpts, to make the core case materials accessible to an Anglophone audience for the first time. Please see attached book proposal and provisional table of contents.

2) Give the names and ranks of all participants in the project.

Prof. Jeremy Perelman, Professor, Sciences Po, and Faculty Director, Human Rights Clinic, Sciences Po Law School
Prof. Sharon Weill, Senior Lecturer, Sciences-Po PSIA
Sci Po Masters Students: Sarah Cattin, Daria Pugliese, Emma Sanchez-Swaren, , Lisa Staxaeng, Anjali Sualy
Prof. Eric Stover, Adjunct Professor, UC Berkeley School of Law, School of Public Health and Faculty Director, Human Rights Center (HRC)
Prof. Kim Thuy Seelinger, Lecturer, UC Berkeley School of Law, and Director, Sexual Violence Program (HRC)
Naomi Fenwick, former UC Berkeley LLM student and Researcher, Sexual Violence Program (HRC)
Berkeley Law students: Emma Berdugo, Djenab Condé, Elise Goebbel, John Hannon, Sanaz Payandeh

3) List all publications resulting from this project. Include titles and issues/dates.

Habré and Beyond: A New Model for Domestic Prosecution of International Crimes? Oxford University Press. Forthcoming, 2019.

4) Comment on the collaborative nature of this project, highlighting aspects that have fostered continuing relationships between French institutions and UC campuses. Will future collaboration occur as a result of this project?

This project has been a wonderful collaboration so far. Professor Sharon Weill, of Sciences-Po, and Kim Thuy Seelinger, of Berkeley School of Law, have traveled to Dakar together twice, co-organized an expert workshop in Paris, and presented initial research findings at an outreach event organized by the Chambre Africaine Extraordinaire (CAE) in Dakar. In preparing for fieldwork and now the edited volume, Weill and Seelinger speak on the phone regularly and also engage in collaborative drafting over Google Docs. Their students have also become close friends and teammates. Seelinger and Weill will work intensively together from Paris this July to finalize a partial draft for OUP review. Seelinger looks forward to meeting more Sci Po faculty and researchers this summer. Once the OUP book is complete, Weill and Seelinger plan to continue Sci-Po / Berkeley exchanges in the future to expand upon this project, potentially taking on additional case studies beyond the CAE in Senegal. Sci Po and Berkeley students will be central to the project design of any future work together.

5) Give a final accounting of how the France-Berkeley Fund award was spent. Do you envision soliciting additional outside funding for this or related projects in the future, and if yes, from where?

We spent FBF funds on:
(3) field missions to Dakar for key informant interviews (February 2017, April 2017, February 2018);
(1) academic & practitioner workshop at Sci Po in Paris (Feb 2017).

We have spent our own funds on project work as needed. We have also applied for, and received, additional support for research and translation from the UC Berkeley's Social Science Matrix ($5000 for overall effort), UC Berkeley Law's Miller Institute for Global Challenges ($1000 for research support) as well as American University in Paris ($5000 for translation). We may apply for additional funds from private foundations in the coming months. Eventually, we hope to release a French version of the volume so the chapter authors can see their work in context and in order to reach a francophone audience generally.

Dean TANTILLO, Dept. of Chemistry, UC Davis
Fabien GAGOSZ, CNRS, Ecole Polytechnique
Experimental and Theoretical Mechanistic Studies on Gold Catalyzed Organic Reactions

FINAL REPORT

Start Date: December 2016

1) Describe the work accomplished, in relation to the original project description.

We held a joint meeting in Ottawa, Canada between the groups of Profs. Tantillo and Gagosz. At this meeting, all group members presented on their current research and plans for collaborating were created. In addition, a student from the Gagosz group visited the Tantillo group for approximately a week to learn computational chemistry hands-on. Collaborative projects are now ongoing, with significant progress having been made on several manuscript drafts.

2) Give the names and ranks of all participants in the project.

Dean Tantillo, Professor, UC Davis
Fabien Gagosz, Professor, U Ottawa and CNRS
Young Hong, Project Scientist, UC Davis (carrying out computations)
Carla Saunders, PhD Student, UC Davis (participated in joint meeting)
Christina McCulley, PhD Student UC Davis (participated in joint meeting, carrying out computations)
Stephanie Hare, PhD Student, UC Davis (participated in joint meeting)
Terrence O'Brien, PhD Student/postdoc, UC Davis (participated in joint meeting)
Tiffany Zhang, PhD Student, UC Davis (participated in joint meeting)
Paul Wendelboe, postbac, UC Davis (participated in joint meeting)
Sadie Dutton, visiting undergraduate at UC Davis (carrying out computations)
Marina Sanita, MS Student, U Ottawa (participated in joint meeting, carrying out experiments, visited UC Davis for hands-on experiments with computations)
Dominic Campeau, BS Student, U Ottawa (participated in joint meeting, carrying out experiments)
Stephanie Jazzar, BS Student, (participated in joint meeting)

3) List all publications resulting from this project. Include titles and issues/dates.

None yet.

4) Comment on the collaborative nature of this project, highlighting aspects that have fostered continuing relationships between French institutions and UC campuses. Will future collaboration occur as a result of this project?
Face to face meetings between the two groups allowed for facile exchange of ideas and the creation of strategies for collaboration that have now been implemented. Collaborative work

involving experiments carried out in the Gagosz group and quantum chemical computations carried out in the Tantillo group is ongoing. We anticipate that several publications in top peer reviewed chemistry journals will result from the collaboration fostered by this project and that our collaboration will continue for years.

5) Give a final accounting of how the France-Berkeley Fund award was spent. Do you envision soliciting additional outside funding for this or related projects in the future, and if yes, from where?

The bulk of the award (~$8300) was spent on the joint group meeting in Ottawa. The remainder was spent bringing a student from the Gagosz group to the Tantillo group for approximately a week to learn computational chemistry hands-on. We continue to look for opportunities to support collaborative grants which will expand on the preliminary results supported by this project.

Steven GLASER, Dept. of Civil and Environmental Engineering, UC Berkeley
Thomas WATTEYNE, EVA Team, Inria Paris
SHRIMP: Smart Harbor Implementation

FINAL REPORT

Start Date: 2016

1) Describe the work accomplished, in relation to the original project description.

The Grand Challenge of SHRIMP has been to develop easy-to-use real-world network monitoring solutions to provide real-time data for smart marina applications, and to use that information to model the connectivity and assist the deployment of those networks. This research has been conducted across the engineering and networking domains. The REALMS associate team has existed for 3 years, and has become an integral part of the work done in the 3 teams. The associate team has enabled the teams to visit one another, with at least 4 visits per year, to and from Inria-Paris, involving Professors, PhD student and postdocs. The associate team has organized a workshop each year. The Glaser and Watteyne teams have successfully carried out the scientific objectives laid. They have co-created and developed SOLSystem (http://solsystem.io/), a complete sensor-to-cloud solution. The SOLSystem solution encompasses the sensor hardware, the sensor firmware, the gateway software, and the back-end solution. The SmartMarina project (http://smartmarina.org/), which has started as part of the SHRIMP project, uses SOLSystem to monitor occupancy in the Cap d'Agde marina in Southern France. SOLSystem is one of the 10 finalists in the “testbed competition” of the IoT Solutions World Congress (http://www.iotsworldcongress.com/), Barcelona, Catalunya, 2-3 October 2017, the leading tradeshow in the field. It has been developed in collaboration with industry leaders Analog Devices and IBM, and in collaboration with start-up Metronome Systems (http://metronomesystems.com/). Without SHRIMP, this projects would not have existed.
The SHRIMP project associate team has contributed significantly to the field of low-power wireless, with 9 joint publications, including in the prestigious IEEE Transactions on Cognitive Communications and Networking and IEEE Internet of Things Journal.

2) Give the names and ranks of all participants in the project.

- Steven Glaser, Prof, UC Berkeley
- Carlos Oroza, PhD student, UC Berkeley
- Sami Malek, PhD student, UC Berkeley
- Thomas Watteyne, faculty, Inria Paris
- Ziran Zhang, postdoc, Inria Paris
- Keoma Brun Laguna, PhD student, Inria Paris

3) List all publications resulting from this project. Include titles and issues/dates.

Academic publications:
- Real-time Alpine Measurement System Using Wireless Sensor Networks. Sami Malek, Francesco Avanzi, Keoma Brun-Laguna, Tessa Maurer, Carlos Oroza, Peter Hartsough, Thomas Watteyne,

Steven Glaser. MDPI Sensors, to appear in 2017.
• A Machine-Learning Based Connectivity Model for Complex Terrain Large-Scale Low-Power Wireless Deployments. Carlos A. Oroza, Ziran Zhang, Thomas Watteyne, Steven D. Glaser. IEEE Transactions on Cognitive Communications and Networking, to appear in 2017.
• Long-term Monitoring of the Sierra Nevada Snowpack Using Wireless Sensor Networks. Ziran Zhang, Steven Glaser, Thomas Watteyne, Sami Malek. IEEE Internet of Things Journal, special issue on Large-scale Internet of Things: Theory and Practice, to appear in 2016.
• Demo: SierraNet: Monitoring the Snow Pack in the Sierra Nevada. Keoma Brun-Laguna, Carlos Oroza, Ziran Zhang, Sami Malek, Thomas Watteyne, Steven Glaser. ACM International Conference on Mobile Computing and Networking (MobiCom), Workshop on Challenged Networks (CHANTS), 7 October 2016, New York, NY, USA.
• SOL: An End-to-end Solution for Real-World Remote Monitoring Systems. Keoma Brun-Laguna, Thomas Watteyne, Sami Malek, Ziran Zhang, Carlos Oroza, Steven Glaser, Branko Kerkez. IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC), Valencia, Spain, 4-7 September 2016.
• Awa: Using Water Distribution Systems to Transmit Data. Karun M. Joseph, Thomas Watteyne, Branko Kerkez. Wiley Transactions on Emerging Telecommunications Technologies (ETT), to appear in 2017.

Websites (which include many pictures)
• Website of “SOL System'', the back-end solution deployed in the Sierra Nevada, the UC Berkeley Botanical. http://www.solsystem.io/
• Website of “SmartMarina'' project, http://www.smartmarina.org/

Video
• https://www.youtube.com/watch?v=juQGnGX5OGs
• https://www.youtube.com/watch?v=LUcLE8D0RbM
• https://www.youtube.com/watch?v=CwgyCmJvyuw

Tradeshows
• Thomas Watteyne and Elsa Nicol present SmartMarina at the VIVA Tech 2018 trade-show.
• Thomas Watteyne and Ziran Zhang present the SOLSystem solution at the VIVA Tech trade-show, 26 May 2017, Paris, France.
• The SOLSystem solution selected as one of the 10 featured testbeds at the IoT Solutions World Congress. Thomas Watteyne, Ziran Zhang and Felipe Moran present the SOLSystem solution at the IoT Solutions World Congress, 3-5 October 2017, Barcelona, Catalunya.

In the News
• [French] SolSystem : une solution “sensor-to-cloud” clés en main, InriaInnovation, 10 November 2017.
• Interview by L’Esprit Sorcier about SmartMarina, Fete de la Science, 8 October 2017.
• Presenting the Smart Marina project at the VIVA Tech trade-show, Inria@Silicon Valley Newsletter, 19 September 2017.
• [French, TV] Cap d’Agde : Une puce innovante pour gérer le port de plaisance, TV Sud, aired 20 June 2017
• [French] 1ère mondiale au Cap d’Agde, des capteurs détectent les entrées les sorties de bateaux, Atout Nautic, 20 June 2017

• [French] Le port du Cap d'Agde connecté, une première mondiale, France Bleu, 20 June 2017
• Interview with Thomas Watteyne "The new use of marinas requires rethinking their operation and imagining a new offer of services", Marine & Oceans, June 2017.
• [Spanish] Experto en IoT de Inria visita Inria Chile, Inria Chile, 9 May 2017.
• [Spanish] Proyecto SmartMarina reinventa los puertos utilizando IoT, Inria Chile, 5 May 2017.
• The EVA team reinvents the Smart Marina, Inria.fr, 26 April 2017. [French version]
• FBF supports SmartMarina project in Cap d'Agde, France. France Berkeley Fund new, 21 April 2017.
• [French] Le Cap d'Agde - le Port en Passe d'Etre Connecte ! Herault Tribune, 19 April 2017.
• [French, video] Objets connectés : des capteurs intelligents pour mesurer l'environnement, YouTube InriaChannel, March 2017.

4) Comment on the collaborative nature of this project, highlighting aspects that have fostered continuing relationships between French institutions and UC campuses. Will future collaboration occur as a result of this project?

The SHRIMP project has proven to be an invaluable tool for aligning the research of both teams. It has produced a great academic track record, and - perhaps more importantly - has driven the research of the team and triggered many opportunities. SHRIMP has allowed the teams to go full circle: from fundamental networking research (through the OpenWSN project), through standardization (through the IETF 6TiSCH standardization activty), to real-world deployments (through SmartMarina). The teams have applied and have been granted an Inria associate team budget for the 2018-2020 period. The Inria-Paris team is discussing turning the SmartMarina project into a startup.

5) Give a final accounting of how the France-Berkeley Fund award was spent. Do you envision soliciting additional outside funding for this or related projects in the future, and if yes, from where?

We sent three graduate students to Inria for training and for working on the project. Zhang became an Inria post doc. The other two, Oroza and Malek, gained significant programming skills and knowledge about 6TiSCH networking. Glaser also visited Inria in Paris and the Cap d'Adge smart marina for installation testing of the hardware. The teams have applied and have been granted an Inria associate team budget for the 2018-2020 period. The Inria-Paris team has been granted a 1 year engineer position from Inria to continue the work in 2019.

Alexei YURCHAK, Dept. of Anthropology, UC Berkeley
Larissa ZAKHAROVA, Dept. de Histoire, Centre d'études des mondes russe, caucasien, centre-européen, Ecole des Hautes Etudes en Sciences Sociales
Scientific Utopias in the Soviet Union: Fiction, Science, and Power (1917-1991)

FINAL REPORT Start Date: June 2016

1) Describe the work accomplished, in relation to the original project description.

The project united researchers studying relations between fiction, arts and science in the Soviet Union in order to explore how literature, arts and film took over and readapted some of the concepts based on scientific discoveries and, conversely, how science used the imagery proposed by fiction and the arts to sustain its discourse, challenge its findings and launch new experiments. An important international conference took place in the framework of the project on September 22-24, 2016 in Paris. 34 researchers (doctoral students, post-doc and professors) from different countries participated in the conference. This event attracted a lot of interest among researchers and general public that got an expression in terms of important attendance. The novelty of the project and of the conference was that it could produce a fruitful dialogue between specialists in literary studies, historians and anthropologists of science. The discussions during the conference helped to understand how fiction and arts, thanks to their heuristic function, participated in the transformation of the scientific activity and contributed to reconfiguring science and power relations. Two thematic clusters were submitted to main journals in the field of Soviet history and literature: The Russian Review and Kritika: Explorations in Russian and Eurasian History. The first thematic cluster is devoted to the creators of utopias and their influence on society. The second thematic cluster is dedicated to epistemological issues in order to understand heuristic value of interdisciplinary links between social sciences and literary studies.

2) Give the names and ranks of all participants in the project.

Grégory Dufaud (associate professor at Sciences Po Lyon), Ioulia Podoroga (post-doctoral researcher at CERCEC), Alexei Yurchak (associate professor at UCB), Larissa Zakharova (associate professor at EHESS), Nikolai Krementsov (professor at University of Toronto), Alexei Kojevnikov (professor at Univeristy of British Columbia), Slava Gerovitch (lecturer at MIT), Leonid Heller (professor emeritus at Lausanne University), Annick Morard (maître-assistante at Geneva Univeristy), Daniela Steila (associate professor at University of Turin), Egle Rindzeviciute (senior lecturer at Kingston University London), Il'ia Kalinin (associate professor at State University of Saint-Petersburg), Joy Neumeyer (PhD student at UCB), Anya Bernstein (associate professor at Harvard University), Matthias Swartz (research associate at Center for Literary and Cultural Research), Robert Bird (associate professor at University of Chicago), Mieka Erley (assistant professor at Colgate University), Steven Lee (associate professor at UCB), Lisa Sang Mi Min (graduate student at UCB), Ksenia Tatarchenko (lecturer at Geneva University), Mikhail Roshchin (senior researcher at Russian Academy of Sciences), Evgeny Vodichev (professor at Novosibirsk State Technical University), Lybov Bugaeva (associate professor at Saint-Petersburg State University), Oliver Sukrow (univ. ass. at TU Wien), Rosana Murias (lecturer at Saint-Petersburg State University)

3) List all publications resulting from this project. Include titles and issues/dates.

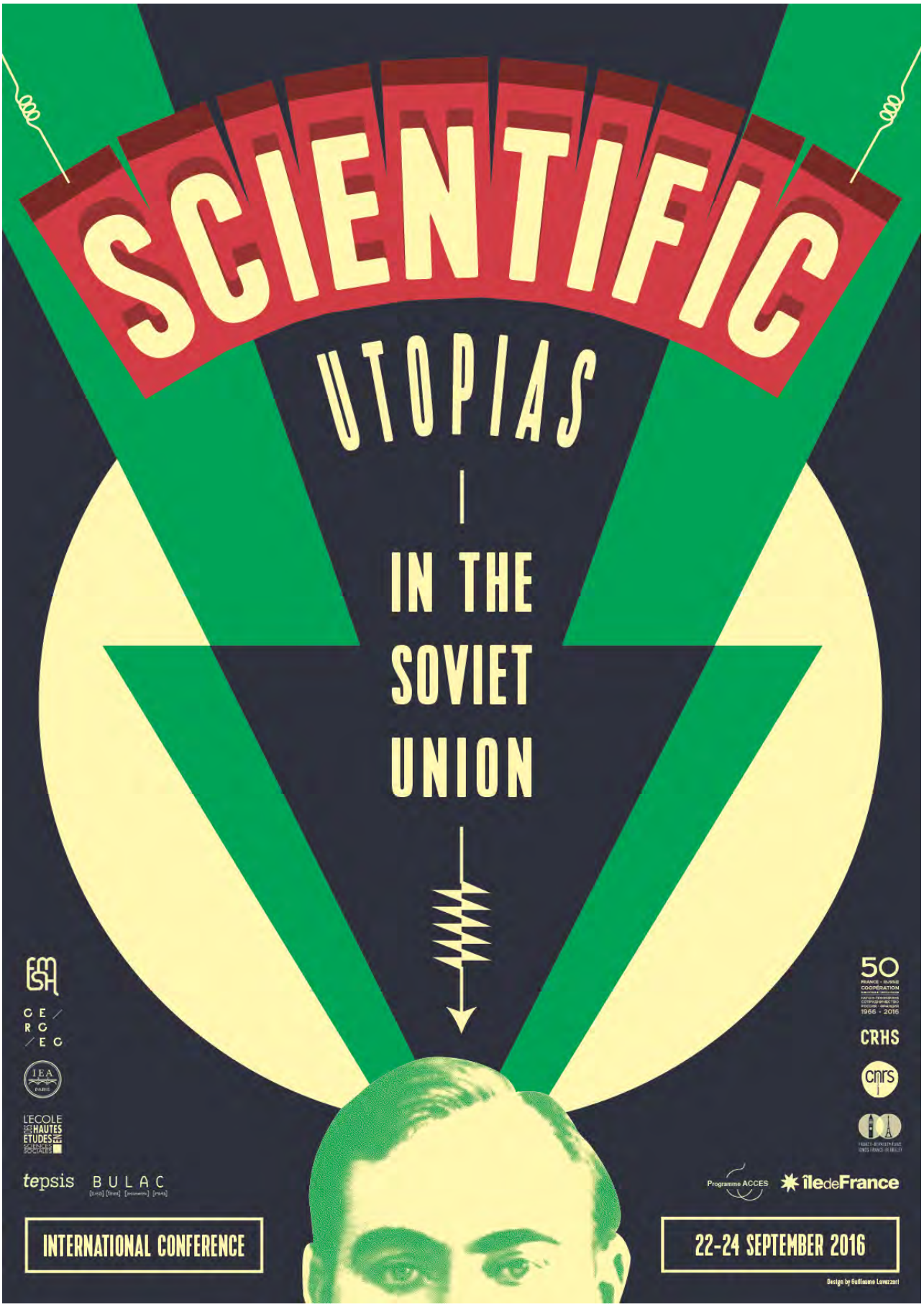
1. Thematic cluster on creators of utopias and their influence on society, accepted by The Russian Review, with articles by Annick Morard "How to Save Utopia? Aleksandr Beliaev's tergiversations between science and entertainment", Matthias Schwartz "A New Poetics of Science. On the Establishment of "Scientific-Fictional Literature" in the Late Stalin Period", Rosana Murias "TECHNOLOGY AT THE SERVICE OF POWER: THE STRUGATSKY'S PRISONERS OF POWER AND THE PSYCHOTRONIC WAR", Il'ia Kalinin "Energy and Socialism: between Electrofication and 'Electrofiction'", and introduction by Gregory Dufaud and Larissa Zakharova, to be published.
2. Thematic cluster on Fiction, Science and Power in the Soviet Union, accepted by Kritika: Explorations in Russian and Eurasian History, with articles by Slava Gerovitch "The Fiction and the Math: The Strugatsky Brothers and the Alternative Reality of Soviet Math Schools", Alexei Yurchak "COMMUNIST PROTEINS. Lenin's Body, Biochemistry and the Origin of Life", Ksenia Tatarchenko ""Right to Be Wrong": Science-fiction, Gaming and Cybernetic Imaginary in Kon-tiki: A Path to the Earth (1985-1986)", Robert Bird "Stalin's Well-Kept Garden: Horticultural Aesthetics and Soviet Statecraft", and introduction by Gregory Dufaud and Larissa Zakharova, to be published

4) Comment on the collaborative nature of this project, highlighting aspects that have fostered continuing relationships between French institutions and UC campuses. Will future collaboration occur as a result of this project?

The collaboration began with the selection of the project participants that was preceded by an open call for contributions. We received more than 140 proposals and made the selection on the criteria of academic excellence and thematic and disciplinary complementarity and diversity. The project helped to bring together various research on scientific utopias in the Soviet Union conducted in different institutions throughout the world. It was particularly helpful for the UCB participants, especially for students, to expose their individual results in front of French and other researchers during the conference. After the conference, one of the coordinator of the project - Alexei Yurchak from UC Berkeley - won a 6-month fellowship at the Institute of Advanced Studies in Paris in 2017-2018, that contributed to strengthening of cooperation with the EHESS in general, and particularly with the Centre d'études des mondes russe, caucasien et centre-européen, the research lab of the second coordinator, Larissa Zakharova. The collaboration continues through the work on thematic clusters that will be published by two journals mentioned above. Other form of collaboration, such as new international conferences, are also possible in the future.

5) Give a final accounting of how the France-Berkeley Fund award was spent. Do you envision soliciting additional outside funding for this or related projects in the future, and if yes, from where?

The award was used for the travel expenditures of American and Canadian scholars to Paris in the framework of the conference of September 2016. Additional funding was received from LabEx Tepsis, EHESS, CERCEC, la Région Ile-de-France, Université Paris 1 Panthéon-Sorbonne, Programme ACCES, Fondation Maison des Sciences de l'Homme.


SCIENTIFIC
UTOPIAS
IN THE
SOVIET
UNION
FMSH
GERGEC
IEA PARIS
L'ECOLE DES HAUTES ETUDES EN SCIENCES SOCIALES
tepsis
BULAC
50 FRANCE - RUSSIE COOPÉRATION 1966 - 2016
CRHS
cnrs
Programme ACCES
îledeFrance
INTERNATIONAL CONFERENCE
22-24 SEPTEMBER 2016
Design by Guillaume Lavezzari

Maciej ZWORSKI, Dept. of Mathematics, UC Berkeley
Laurent MICHEL, Dept. de Mathématiques, Université de Nice
Semiclassical Study of Randomness and Dynamics

FINAL REPORT

Start Date: August 2016

1) Describe the work accomplished, in relation to the original project description.

In a joint project we considered the Kramers-Smoluchowski equation at a low temperature regime and showed how semiclassical techniques developed for the study of the Witten Laplacian and Fokker-Planck equation provide quantitative results. This motivated LM's work on a longer paper which, as explained in in our joint work, can be used to obtain results in higher dimensions and for general potentials. In work in progress we are considering the case of more general flows than the gradient flows considered in the previous papers. That is motivated by large and non-conclusive physics and applied maths literature. A related project was pursued by Alexis Drouot who considered kinetic Brownian motion on the cosphere bundle of a Riemannian manifold . He showed that the spectrum of the infinitesimal generator of this process converges to the Pollicott-Ruelle resonances

2) Give the names and ranks of all participants in the project.

M. Zworski (Professor UC Berkeley)
L. Michel (Associate Professor Univ. de Nice)
A. Drouot (Doctoral student UC Berkeley)

3) List all publications resulting from this project. Include journal titles and issues/dates.
The three papers have been submitted for publication in research journals. They have been available on an archive servers:

https://arxiv.org/abs/1607.03841 (to appear in Comm. Math. Phys.)
https://arxiv.org/abs/1702.01837 (submitted to Pure and Applied Analysis)
https://arxiv.org/abs/1703.07460 (to appear in SIAM J. Math. Analysis)

4) Comment on the collaborative nature of this project, highlighting aspects that have fostered continuing relationships between French institutions and UC campuses. Will future collaboration occur as a result of this project?

Our collaboration strengthens the existing ties between Berkeley maths department and Universite de Nice. Alexis Drouot was a French graduate student here and he participated in the project.

5) Give a final accounting of how the France-Berkeley Fund award was spent. Do you envision soliciting additional outside funding for this or related projects in the future, and if yes, from where?

The FBF money was used to provide partial support for LM's year long stay in the Bay Area.

GIVE TO FBF

Support cutting-edge research and international collaboration

Your gift will help us grant seed money to innovative projects that bring together professors, researchers and young scholars from UC Berkeley, UC Davis, and institutions throughout France.

With your contribution, the FBF will advance its mission of fostering interdisciplinary inquiry and exchange.

We offer a variety of ways to give, including: Outright Gifts, Pledges, Endowments, and Planned Giving Donations. Personal and corporate gifts and sponsorships, small and large, are accepted and appreciated.

To discuss the possibility of establishing a one or multiyear named FBF grant, or one in perpetuity, please contact us at fbf@berkeley.edu

PHOTO CREDITS:

p. 7, Adam Arkin / Peg Skorpinski
p. 8, Louise Berben / Carl Boettiger
p. 8, Marc Robert / Photothèque CNRS
p. 14, Stephen Leone / Kathleen Fowler
p. 18, the Mekong Delta / G. Mathias Kondolf
p. 18, Diagram of rotating black hole / Alexander A. Philippov
p. 18, Lauren Lui / Sam Vohr
p. 18, Laser and vacuum apparatus for measurements of topological insulator materials / Stephen Leone

DESIGN: Julia Nelsen

Special thanks to Kermit Lynch Wine Merchant for their generous sponsorship

fbf.berkeley.edu