Study describes the melting of gold nanoparticles in gold-bearing fluids in the Earth's crust

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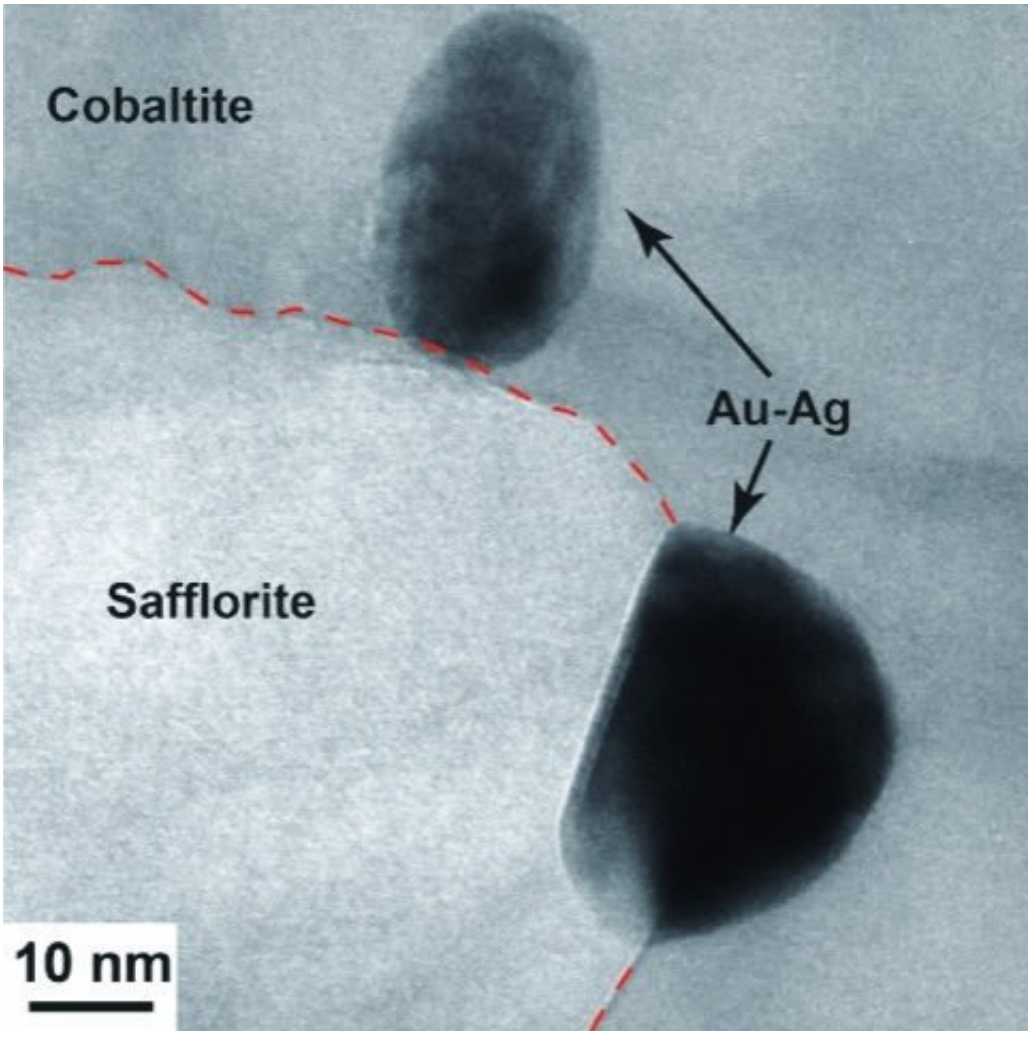

Close-up of the melting of two gold nanoparticles. The one on the right is under melting process, while the one on the top has already melted completely and has taken on a fully rounded shape. Credit: University of Barcelona

Gold is a precious metal that has always fascinated humans. From Priam's Treasure to the legend of El Dorado, gold—regarded as the noblest of metals—has been a symbol of splendor and wealth in many civilizations. Historically, gold deposits were known to form when metal was transported dissolved by hot aqueous solution flows, or hydrothermal fluids, until it accumulated in some areas in the Earth's upper crust. The recent discovery of gold nanoparticles in such mineral deposits has brought some doubts on the validity of the classical model.

Now, a paper published in *Scientific Reports* reopens the scientific debate on the validity of traditional models for the transport of this precious metal in nature. The new study reveals for the first time that gold nanoparticles exposed to hydrothermal fluids have the ability to melt and produce gold nanomelts at temperatures lower (