

# The World's Smallest Spontaneous Atomic Valentine

February 14 2010, by Ted Goodman

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The Jeol 2100F microscope, a new generation aberration-corrected electron microscope, allows a clear view of the palladium atoms.

(PhysOrg.com) -- Palladium atoms placed on a carbon base spontaneously formed into an 8 nanometer heart at the University of Birmingham's Nanoscale Physics Research Laboratory this week. Just in time for Valentine's Day!

According to the physicists observing the atoms through the Lab's [JEOL 2100F microscope](#), Zhiwei Wang and David Pearmain, they watched with love, but really had absolutely nothing to do with the heart formation of the atoms.

Sadly, the bright, beautiful [palladium](#) Valentine will not be given to a special lady. Being only 8 [nanometers](#) in size, it can't be seen by the human eye, and cannot even be relied upon to stay in the smallest ring setting. But we can all admire the wonderful high-angle, very high-power shot of the world's smallest and, arguably, prettiest naturally-formed Valentine.

Although the palladium Valentine was a nice surprise for the scientists, they actually have other reasons for studying the palladium atoms. Professor Richard Palmer, head of the Laboratory explained:

"Size-selected atomic clusters, of the kind which fused together to assemble the atomic heart, are of practical relevance as model catalysts; the palladium/carbon system is employed as a real industrial catalyst in the fine chemicals sector. Precise control of the atomic architecture of the clusters may lead to enhanced yield and especially selectivity in complex catalytic reactions, as well as reducing the number of [metal atoms](#) needed to catalyze the reaction."

*The Nanoscale Physics Research Laboratory was established in 1994 as the first centre for [nanoscience](#) in the UK. Four spin-off companies have been generated from the Laboratory since 2005.*

**More information:** Information provided by: Professor [Richard Palmer](#), [The Nanoscale Physics Research Laboratory](#), [University of Birmingham](#).

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