Gold Nanoparticle gradient to aid catalyst, sensor research

posted by JimLewis on Sunday July 28, @06:31PM
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Gina Miller writes "A July 18, 2002 Brookhaven National Laboratory press release reports that researchers at North Carolina State University have developed a material (which was then tested at Brookhaven) with gold nanoparticles deposited in a gradient of decreasing density along a silica surface. The decreasing gradient of particles was formed because the particles bound to organosilanes that had previously been emitted as a vapor and then deposited in a gradient of decreasing density on the surface according to increasing distance from the emitter. The press release has what appear to be AFM images of the decreasing density of gold nanoparticles."

"The key feature of the gradient formed is that the nanoparticles followed a pre-designed molecular template provided by the organosilane groups. Such gradients could aid research on the use of clusters of nanoparticles as catalysts. 'Clusters made of different numbers of nanoparticles could be put on a single surface, and scientists could test this surface only once in a chemical reaction, instead of having to run each cluster separately through the reaction,' one of the researchers is quoted as saying. The press release continues 'The material could also be used as a sensor to detect species that have specific affinities for nanoparticles, or as a filter to select particles of given sizes.' The research is published in the July 23 issue of Langmuir."

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