

# Molecules that suck

21 November 2005

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The interaction between the tip of a scanning tunnelling microscope (STM) and atoms or molecules bound to a surface can be used to construct impressive nanostructures, such as the 'quantum corral'.

As reported in the December issue of *Nature Materials* (DOI: 10.1038/nmat1529), researchers combine STM manipulation techniques with the ability of a molecule to assemble nanostructures by sucking up and depositing atoms where needed.

The invention of the STM in the early 1980s was the catalyst of the nanoscale technological revolution, not only for imaging but also for interacting with matter at the atomic scale. Since then, progress in manipulation techniques has shown that the interaction of molecules with the surface of a metal can induce surface reconstruction. Francesca Moresco and colleagues now go a step further by moving and organizing metal atoms on a substrate with the help of a well-designed six-leg organic molecule.

The copper atoms trapped under the organic molecule can be further rearranged by bringing the whole system and its copper load to a specific position on the surface where the metal atoms can subsequently be released.

The authors believe that this versatile assembling approach should facilitate the interconnection of molecular devices to well-defined atomic-scale metallic electrodes on insulating surfaces, where STM has so far proved unsuccessful.

Source: Nature

APA citation: Molecules that suck (2005, November 21) retrieved 2 December 2021 from <https://phys.org/news/2005-11-molecules.html>

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