

IBM measures force needed to move an atom

by UPI

SAN JOSE, Calif. - U.S. and German scientists have become the first to measure the force it takes to move individual atoms on a surface. The researchers from IBM's Almaden Research Center in San Jose, Calif., and the University of Regensburg in Germany said their landmark achievement provides fundamental information about atomic-scale fabrication and might lead to new miniaturized data storage devices and computer chips by furthering progress toward nanoscale computing and medical technologies. The research shows the force required to move a cobalt atom over a smooth platinum surface is 210 piconewtons, while moving a cobalt atom over a copper surface takes only 17 piconewtons. To put that into perspective, the scientists said the force required to lift a copper penny weighing only three grams is nearly 30 billion piconewtons. The researchers said the ability to measure the force it takes to move individual atoms provides a new window into the workings of atom-by-atom construction and operation for future nanodevices. The discovery is reported in detail in Science magazine.

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