

Under the microscope #16 - Nanowires

March 16 2012

Nanowires growing in real time. Each nanowire is roughly 450 atoms wide.

This is the last [video](#) in the Under the Microscope series. We hope you have enjoyed viewing them as much as we enjoyed making them. Look out for more video series like this in future. You can check out all the other microscope videos here: bit.ly/A6bwCE

Andrew Gamalski: “This video is a bright field environmental transmission electron microscopy video of [silicon](#) nanowires growing from gold catalyst particles. The dark crystalline shapes initially present in the video are the gold particles. Disilane, a silicon rich gas, feeds nanowire growth. The solid catalyst particles liquefy after being exposed to the disilane early in the video. Eventually, a solid silicon crystal forms in the now liquid catalyst particle. This crystal continues to grow as silicon is continuously deposited into the catalyst from the disilane gas. The new silicon crystal’s diameter is restricted by the size of the gold catalyst. This means the silicon can grow in one direction only, forming a nanowire.”

Video courtesy of S. Hofmann, et al. *Nature Materials* 7, 372 – 375 (2008). Speaker in the video is Andrew D. Gamalski, a current graduate student studying nanowire growth under Dr. Stephan Hofmann in the Engineering Department at the University of Cambridge. Additional information about this group’s experiments involving germanium [nanowires](#) can be found at: nanotechweb.org/cws/article/tech/43377

Original *Nature* article: www.nature.com/nmat/journal/v7...5/full/nmat2140.html

Provided by University of Cambridge

Citation: Under the microscope #16 - Nanowires (2012, March 16) retrieved 23 April 2024 from <https://phys.org/news/2012-03-microscope-nanowires.html>

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