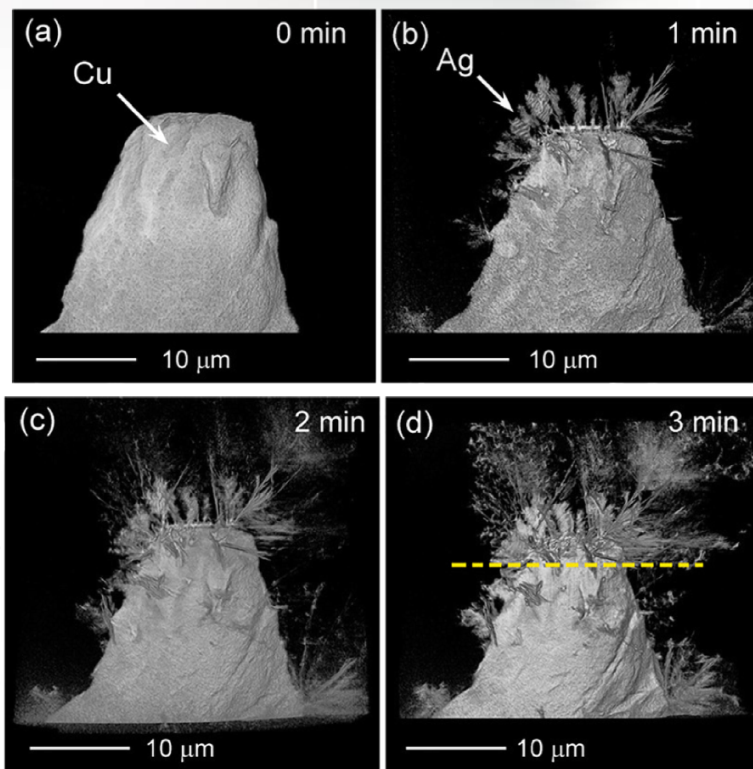


# One-Minute Nanotomography



The top left image shows the bare copper (Cu) base before the growth of the silver (Ag) whiskers begins. The images b-d show the different stages of whisker growths in one-minute increments.

M. Ge, D. S. Coburn, E. Nazaretski, W. Xu, K. Gofron, H. Xu, Z. Yin, and W. K. Lee. *Appl. Phys. Lett.* **113**, 083109 (2018)

Work was performed at Brookhaven National Laboratory

## Scientific Achievement

Scientists achieved 3D nanotomography with a sub-50-nanometer resolution in one minute.

## Significance and Impact

This accomplishment demonstrates that synchrotron X-ray nanotomography can be used for imaging fast changing systems, such as structural morphology evolution during chemical reactions, in operando and in real time measurements.

## Research Details

- To achieve this, scientists used the newly designed and commissioned full field transmission X-ray microscope at NSLS-II the FXI beamline.
- They imaged the growth of silver (Ag) whiskers on copper (Cu) with 20 milliseconds snapshots during continuous rotation of the sample.