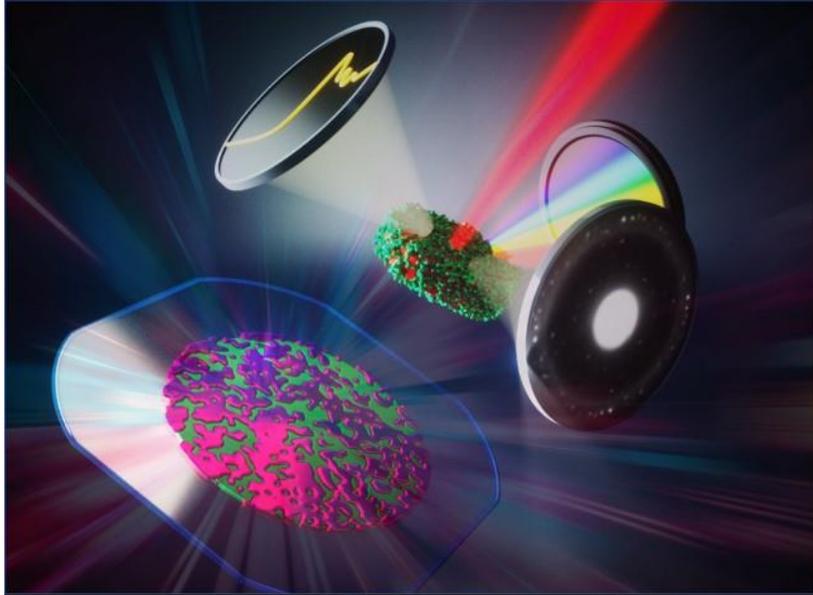


# Turning Up the Heat to Create New Nanostructured Metals



*Artist's impression of multimodal characterization of a bi-continuous thin film using a combination of X-ray and electron analysis methods.*

C. Zhao, K. Kisslinger, X. Huang, M. Lu, F. Camino, C.H. Lin, H. Yan, E. Nazaretski, Y. Chu, B. Ravel, M. Liu, Y.C.K. Chen-Wiegart. *Mater. Horiz.*, **6**, 1991-2002 (2019).

*Work was performed in part at Brookhaven National Laboratory*

## Scientific Achievement

Scientists demonstrated that solid-state interfacial dealloying (SSID) can be used to create bi-continuous nanostructured thin films for potential applications in catalysis, biomedical sensing & energy storage.

## Significance and Impact

This work advances the mechanistic understanding of the SSID process, and sets a path for designing future nanostructured metallic thin film materials for applications.

## Research Details

- The pattern formation mechanism, dealloying mechanism, dimensionality & substrate interaction were studied using a multi-modal approach.
- X-ray nanotomography at NSLS-II's HXN beamline, x-ray absorption spectroscopy at NSLS-II's BMM beamline, and fabrication facilities, electron-based imaging and diffraction at CFN were used to investigate various properties of the samples.