

Center for Bioengineering Innovation

— 2017 Lecture Series —

In situ TEM Experiments and Electron Holography for Mapping the Magnetic Field in Nanostructures

Dr. Arturo Ponce
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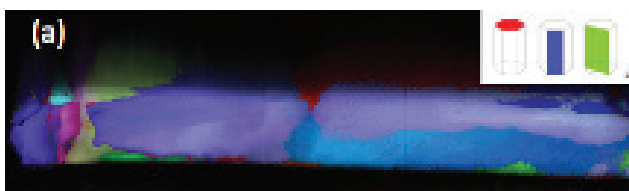
Friday, March 3, 2017
2:30-3:30 p.m.
Biology (Building 21), room 265

For more
information, visit
nau.edu/cbi/events

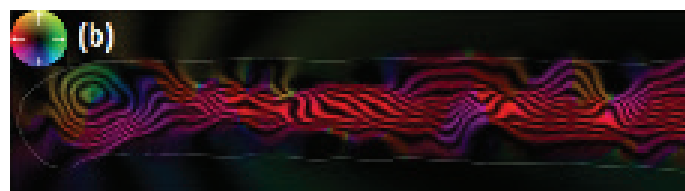
Transmission electron microscopy (TEM) provides data at the atomic scale for studying the structural and chemical properties of novel materials such as metallic alloys, semiconductors, and ceramics. Understanding the behavior of these materials under external signals is one of the most recent challenges in TEM. During this talk, Dr. Ponce will present:

- New investigations in materials at nanoscale explored by in situ TEM.
- In situ magnetization of metallic nanowires and their response studied by electron holography and crystal orientation phase mapping.
- The orientation phase mapping registered in scanning mode and under precession electron diffraction.

Dr. Ponce has established a reputation in advanced transmission electron microscopy and has been recognized in the field for contributing to in situ TEM, electron holography for magnetic analysis, and electron diffraction. He joined the University of Texas at San Antonio in 2011, where he is now the Core Director of the Kleberg Advanced Microscopy Center. Author of more than 90 peer-reviewed articles, Dr. Ponce earned an undergraduate degree in Chemistry at the University of Puebla (Mexico); a Ph.D. in Materials Science and Engineering at the University of Cadiz (Spain); and completed a postdoctoral fellowship in electron crystallography at IFUAM in Mexico and CNRS in France.



(a) Crystalline phase orientation map.



(b) Magnetic map recovered from the electron hologram.