

## Research

The Keck Center is set to take delivery of a new Scanning Electron Microscope. The microscope, an Inspec S by FEI, was purchased with a grant from the Keck foundation. Additional capabilities purchased with the SEM include a Thermo-Fisher Noran 6 Energy Dispersive Spectrometer, EDS, and a JC Nability Nanometer Pattern Generation System, NPGS. The Noran 6 provides elemental analysis on the same scale as the SEM image with elemental sensitivity down to Beryllium using new Silicon Drift Detector technology. This new type of detector eliminates the need for liquid nitrogen cooling of the detector. This system allows imaging with elemental detection overlays to produce an element map of a surface with the same resolution as the SEM image. The Nability NPGS system is for patterning sub-micron structures by electron beam lithography. This system uses the electron beam in the SEM to write a pattern in a layer of polymethylmethacrylate, PMMA, which can then be developed to leave exposed areas that a metal, such as gold, can be deposited onto. Once the PMMA is stripped, the remaining structures can be used to create the next generation of organic/hybrid electronics or mechanical components for Nanotechnology. These new capabilities complement the imaging and surface analytical tools currently available in the Keck Center and the Laboratory for Electron Spectroscopy and Surface Analysis.

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