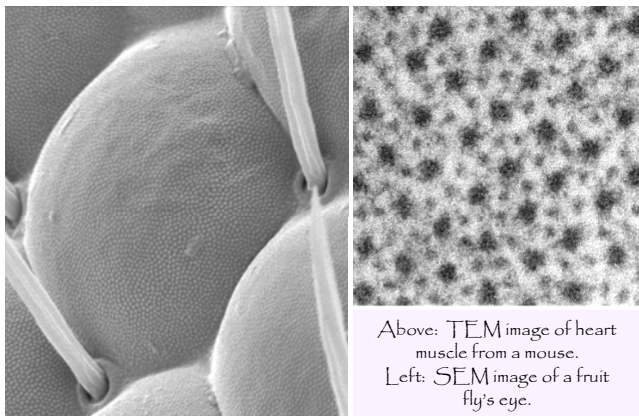


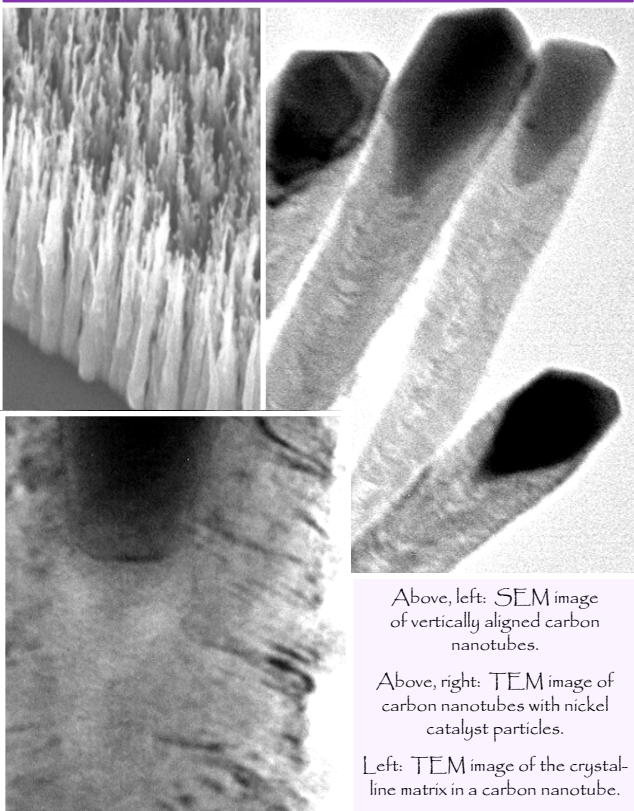
## Life Science Images



Above: TEM image of heart muscle from a mouse.

Left: SEM image of a fruit fly's eye.

## Materials Images



Above, left: SEM image of vertically aligned carbon nanotubes.

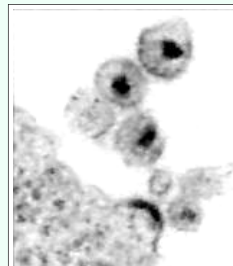
Above, right: TEM image of carbon nanotubes with nickel catalyst particles.

Left: TEM image of the crystal-line matrix in a carbon nanotube.

## Nanotechnology at Trinity College

The ELECTRON MICROSCOPY FACILITY at Trinity offers undergraduates a rare opportunity for exposure to nanotechnology.

Electron microscopes (or EMs) are powerful instruments used in medicine, industry, and academic settings around the world to study the fine structure and properties of living and non-living materials. In 1996, Trinity College was awarded a grant from the National Science Foundation to build an interdisciplinary ELECTRON MICROSCOPY FACILITY for use by all the sciences. The resolving power of Trinity's EMs may be measured in fractions of a nanometer ( $10^{-9}$  meter), enabling magnifications of *millions* of times. This capability makes it possible to image and study specimens at the nano-



TEM image of human viruses budding from a cell surface.

level... all of which means that an EM can *really* zoom in!



TEM image of IC chip interconnect.

The ELECTRON MICROSCOPY FACILITY is available for use by all students and faculty, and features two transmission electron microscopes, or TEMs—one dedicated to Life Sciences and one to Materials Sciences—plus a scanning electron microscope, or SEM, and a range of advanced tools for specimen preparation, data analysis, and digital output. All are accessible to students for explorations into the realm of the nano-world!

The Electron Microscopy Facility at Trinity College

300 Summit Street, Hartford CT 06106

Phone: (860) 297-4289

Email: [ann.lehman@trincoll.edu](mailto:ann.lehman@trincoll.edu)

Facility web: [www.trincoll.edu/~alehman](http://www.trincoll.edu/~alehman)

Electron  
Microscopy  
at  
Trinity  
College

For more information, visit  
[www.trincoll.edu/~alehman](http://www.trincoll.edu/~alehman) or  
email [ann.lehman@trincoll.edu](mailto:ann.lehman@trincoll.edu)

On the cover: TEM image of microvilli from the intestine of a mouse.

# How YOU can use Electron Microscopy at Trinity

## Explore the Nano-world.

### FULL COURSES IN ELECTRON MICROSCOPY

Scanning Electron Microscopy (Biol 210)

Transmission Electron Microscopy (Biol 220)

Interdisciplinary Science Program (ISP I18)

Independent Research within a Science Department

### COURSES WITH LABS IN ELECTRON MICROSCOPY

Engineering of Materials (Engr 232)

Organisms and Populations (Biol 152)

Cells, Metabolism, and Heredity (Biol 153)

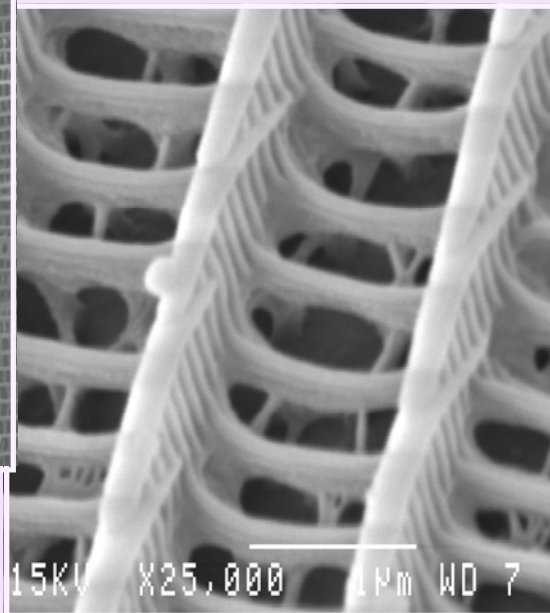
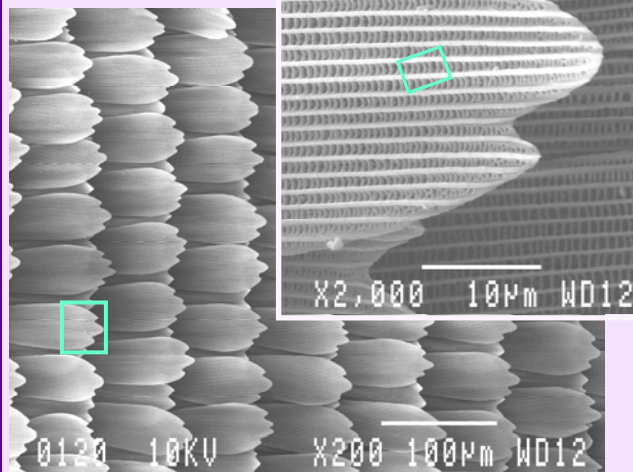
Sensory Biology (Biol 473)

Modern Physical Measurements (Phys 320)

Earth Systems Science (Geos 204)

Archaeological Chemistry (Chem 155)

An SEM study of the scales from a butterfly's wing.



## Take Part in Research.

### RESEARCH ADVANTAGES & BENEFITS

Students who learn to use EM in research may also participate in research publications in scientific Journals and presentations at local, national, and international Meetings.

*Here are some examples from the past 3 years:*

Journal of Morphology

American Chemical Society (ACE)

Materials Research Society (MRS)

Journal of Experimental Zoology

Journal of Chemical Education (JCE)

Microscopy and Microanalysis (M&M)

Connecticut Microelectronics and Optoelectronics Conference

Applied Physics Letters

Society for Integrative and Comparative Biology

American Physics Society Conference

An SEM & TEM study of aluminum nanostructure.

