3:30-4:30pm, Friday, November 2, 2012
Frank H. Walk Design Presentation Room

by John R. Howell, Ph.D.*

Nano- to micrometer scale geometric features (grooves, rectangular patterns) on the surface of certain materials cause thermal radiation emission or absorption to have pronounced directional and wavelength characteristics. Such tailored surfaces have been studied and their characteristics predicted and experimentally verified. In the design of radiating devices, however, it is useful to first identify the desired directional and wavelength characteristics needed for a particular application, and then determine the surface texture and device geometry that will provide these characteristics. This is an inverse problem.
This research studies the inverse mathematics that must be solved for such design, with its well-known