

Radiative Properties of Microrough and Nanostructured Surfaces - An Overview

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An overview of some of the recent works on light scattering and thermal emission from microrough and nanostructured surfaces will be given in this talk. The materials and structures include anisotropic silicon with or without coatings, metallic films on photonic crystals, gratings structures, etc. The effect of surface waves on the radiative properties will be emphasized. Experimental facilities for measuring bidirectional reflectance, directional-hemispherical reflectance, specular reflectance, and emittance measurement will be discussed. The applications range from nanoelectronic fabrication, energy conversion devices, to nanothermal manufacturing.