

Comparing Confocal and Interference Contrast Microscopy in Topography, Roughness, and Film Thickness Measurement

Matthias Vaupel

Carl Zeiss Microscopy GmbH, Goettingen, Germany

Motivated by the trend to replace metallic parts and layers by Carbon nanotubes and graphene for its high mechanical stability and electrical conductivity, the capabilities of confocal and interference contrast microscopy are compared. Among the metallographic analysis of bare metallic surfaces the focus is on grain size characterization, wear volume, and roughness. Thickness of transparent SiO₂ or polymer films is measured by means of optical models. The transition from μm -thick to pm-thin films is discussed.