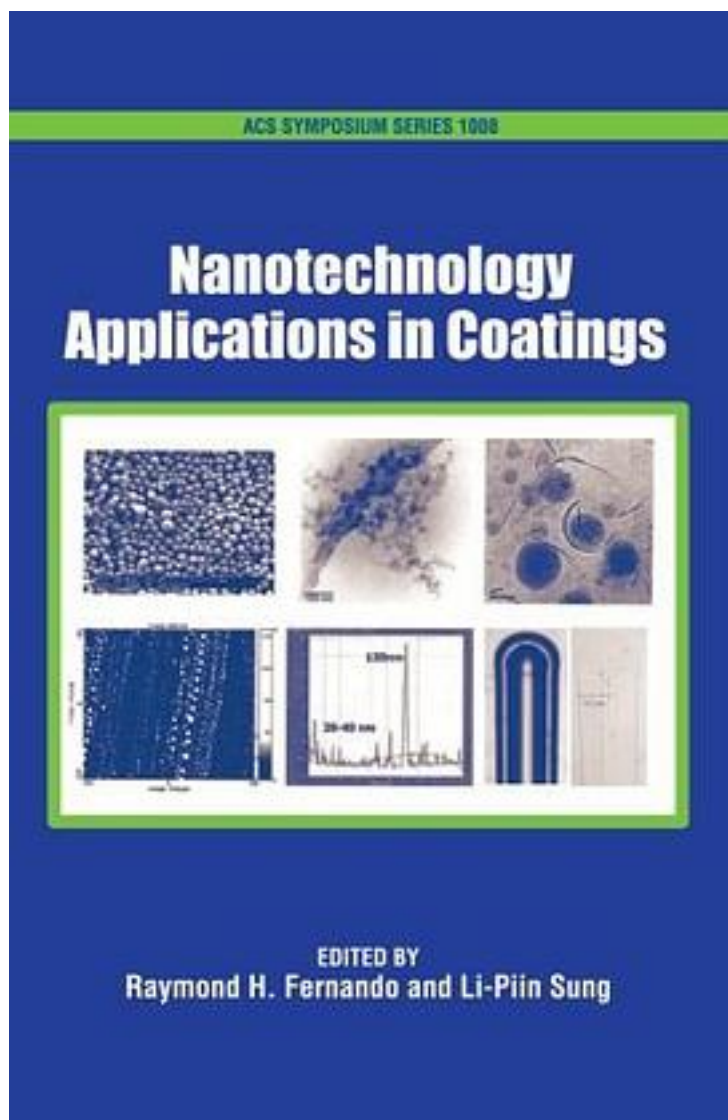


# Nanotechnology Applications in Coatings



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Nanotechnology based coating products have shown remarkable growth in recent years. This book begins with an overview chapter on recent scientific and technological advancements in nanotechnology applications in this field. Subsequent chapters cover, in detail, a number of key applications of nanotechnology in coatings, along with the related fundamental science. Some contributions focus on issues related to inorganic/organic nanocomposite coating films, including dispersion of inorganic nanoparticles and nanoclays. Surface Functionalized nanoparticles, predispersed inorganic nanoparticles that can be mixed with existing organic coating formulations and organic/inorganic hybrid latexes are approaches discussed for preparation of nanocomposite coatings having improved scratch, corrosion, and UV resistance. Several chapters address nanostructure development approaches to impart specialized functionality and performance to coatings. Nanoporous adhesive microbial ink-jet ink for miniature biosensors and biocatalysts and nanostructured conjugated polymer networks are discussed. Characterization of nanostructure and nanoparticle dispersion in coatings is a difficult challenge, and this challenge is addressed in several chapters. Assessment of photocatalytic activity of nanoparticles, use of atomic force microscopy, applications of Nano-Indentation for mechanical property measurements, and nano-thermal analysis are discussed. Size determination techniques suitable for nanoparticles are also reviewed. The highly multidisciplinary nature of the field is evident throughout the book.

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