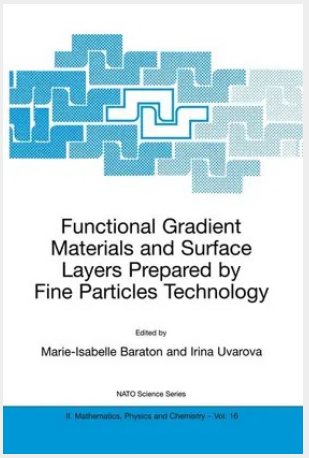
Baraton / Uvarova

Functional Gradient Materials and Surface Layers Prepared by Fine Particles Technology



The NATO Advanced Study Institute on "Functional Gradient Materials and Surface Layers Prepared by Fine Particles Technology" was held in Kiev (Ukraine) on June 18-28, 2000 where more than 90 participants, ranging from Ph.D. students to experienced senior scientists, met and exchanged ideas. This meeting was aimed at stimulating the research work across traditional disciplinary lines by bringing together scientists from diverse research areas related to functional gradient materials and surface layers. It also intended to give opportunities for initiating collaborative works between scientists from NATO and Partner countries and to trigger fruitful and exciting discussions between experienced and young researchers. In this respect, this NATO-ASI has been quite successful. The term of functional gradient materials which originates from Japan in the 1980's describes a class of engineering materials with spatially inhomogeneous microstructures and properties (MRS Bulletin, 1995,20, N°I). These materials can be successfully utilized in various applications like electronic devices, optical films, anti wear and anti-corrosion coatings, thermal barrier coatings, biomaterials, to name only a few. Although these functional gradient materials are not fundamentally new, the use of nanoparticles in their fabrication and in surface layers as well has greatly improved their performances to meet challenging requirements for industrial applications.

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