NANOTECHNOLOGY TOOLS

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Abstract

Fabrication of nanostructured and nanocomposite materials constitutes a rapidly developing field. This is given by the attractiveness of such materials connected with their unique properties (electronic, magnetic, optical and structural) as well as by enormous progress in the nanoscience and nanotechnologies allowing both their production and characterization. Numerous techniques were employed for preparation of nanostructured and nanocomposite materials. Some of them are based on utilization of gas aggregation cluster sources and glancing angle deposition, whose application for production of different types of metal nanoclusters (Ag, Al, Cu, Ti) and metal nanoclusters/plasma polymer thin films will be presented in this contribution. Since the properties of such materials are related not only to their composition, but are also governed by their nano-size structure, the main attention will be devoted to the determination of topography and even structure of deposited materials using the best performance scanning electron microscopes (SEM TESCAN).

TESCAN is global supplier of scanning electron microscopes used for research, and manufacturing in the area of automotive and aerospace, biotechnology, metallurgy, education, forensic science and most recently also in nanomaterials. The company is located in Brno, the Czech Republic, a region with a long tradition of electron optics research that includes over sixty years’ history designing and producing electron microscopes. TESCAN has nearly twenty years of experience, with about 800 microscopes installed in over 50 countries. By participating in top research projects and by co-operation with leading companies in microscopy, the TESCAN branch successfully enters the world of nanotechnology by its instrumentation.

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