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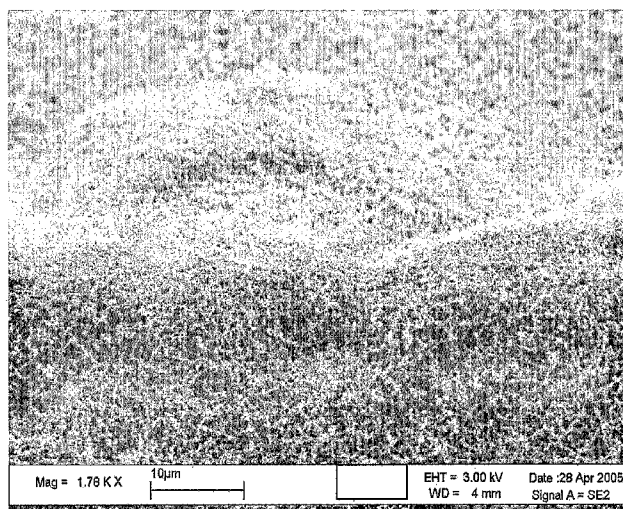
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(54) Title: METHOD FOR MANUFACTURE AND COATING OF NANOSTRUCTURED COMPONENTS



(57) Abstract: The synthesis of nanostructures uses a catalyst that may be in the form of a thin film layer on a substrate. Precursor compounds are selected for low boiling point or already exist in gaseous form. Nanostructures are capable of synthesis with a masked substrate to form patterned nanostructure growth. The techniques further include forming metal nanoparticles with sizes <10nm and with a narrow size distribution. Metallic nanoparticles have been shown to possess enhanced catalytic properties. The process may include plasma enhanced chemical vapor deposition to deposit Ni, Pt, and/or Au nanoparticles onto the surfaces of SiO₂, SiC, and GaN nanowires. A nanostructure sample can be coated with metallic nanoparticles in approximately 5-7 minutes. The size of the nanoparticles can be controlled through appropriate control of temperature and pressure during the process. The coated nanowires have application as gas and aqueous sensors and hydrogen storage.

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