Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Anisotropic Electrical Properties of Nanostructured Metallic Thin Films MO AHOUJJA, Physics Departrment, University of Dayton, Dayton, OH, PIYUSH SHAH, University of Dayton Research Institute, Dayton, OH, ANDREW SARAGAN, University of Dayton Electro-optics, Dayton, OH, SAID ELHAMRI, Physics Departrment, University of Dayton, Dayton, OH, ELENA GULIANTS, University of Dayton Research Institute, Dayton, OH — High surface area, porous, metallic (Ti, Cr) nanorod thin films with columnar microstructure can be deposited using conventional physical vapor deposition technique of E-beam evaporation. The technique relies on the physical vapor deposition onto a static substrate oriented in a position where flux from the source material (Ti, Cr) arrives at oblique angle. The adatoms provides geometrical shadowing which results in growth of nanorod columns in the direction of vapor source. Deposition conditions such as angle of the incoming vapor flux, substrate temperature, surface diffusion etc. have strong influence on the shape and arrangement of the columnar thin films. In this work, we demonstrate the growth and electrical characterization of these nanostructured thin films. Preliminary results on these films exhibit electrical resistivity anisotropy, when characterized by measuring their electrical resistivity using conventional van der pauw method. Origin and possible causes of this resistivity anisotropy is discussed.

Mo Ahoujja
Physics Departrment, University of Dayton, Dayton, OH

Date submitted: 30 Nov 2010 Electronic form version 1.4