



Symposia Summary

Recent Developments in Biological, Electronic, Functional and Structural Thin Films and Coatings

Organizers: Nuggehalli M. Ravindra (New Jersey Institute of Technology), Jian Luo (Clemson University), Xing Yang (Mark) Liu (National Research Council Canada), Nancy Michael (University of Texas at Arlington), Roger Narayan (University of North Carolina and North Carolina State University), Choong-un Kim

Sponsored by the TMS Electronic, Magnetic, and Photonic Materials Division, the Symposium offered 32 talks, distributed over four sessions, on process-property-performance correlations and applications. A few Symposium highlights are summarized as follows:

Xavier Sauvage of University of Rouen, CNRS, gave an excellent presentation on the processing and characterization of sputtered Fe-C thin films. Marcin Tlustochowicz of CTLGroup spoke about the importance of the dependence of tribology of carbide derived carbon films on humidity. Okan Agirseven from Istanbul Technical University discussed the processing and properties of silicon carbonitride thin films of variable compositions on glass and steel substrates. Bal Mukund Dhakar from the Indian Institute of Technology Roorkee, presented results on the influence of re-melting and lanthanum oxide addition on the microstructure, hardness and abrasive wear behavior of Ni-WC coatings. Manisha Dixit, a graduate student at the Department of Physics, Ohio State University, gave an excellent presentation on High resolution scanning transmission electron microscopy and characterization of $\text{Sr}_2\text{FeMoO}_6$ thin films.

Mark Liu of the National Research Council, Canada, discussed the properties of coatings formed by plasma electrolytic oxidation of magnesium alloy in electrolytes containing Al_2O_3 suspension. Sina Youssefian of UMass-Dartmouth spoke on adhesion between polymer/metal interfaces. This was followed by an excellent presentation by Leah Hill of University of Florida, on hyperthermal hydrocarbon modification of poly methyl methacrylate (PMMA). Nancy Michael of the University of Texas at Arlington presented results on the mechanism of creep deformation in porous organosilicate thin films. A discussion on the formation of crystalline and amorphous phases during deposition of $\text{Ni}_x\text{Ti}_{1-x}$ thin films on Si was offered by Shampa Aich of the Indian Institute of Technology, Kharagpur. Bo Wang of Colorado School of Mines spoke on the preparation and properties of antimony selenide thin films.

Adele Carradò of the University of Strasbourg presented results on the mechanical performance and bioactive behavior of multilayer roll bonded sandwich. This was followed by a discussion of the nanomechanical properties of polyethylene glycol coatings on flat gold substrates by Frank DelRio from the National Institute of Standards and Technology. Represented by his colleagues from the New Jersey Institute of Technology (NJIT), Sudhakar Shet (NJIT-NREL) gave two talks on bandgap-engineered ZnO films for solar driven hydrogen production. Following this was an excellent talk on characterization of thin film photovoltaic microstructures and correlation with conversion efficiency by Matt Nowell of EDAX-TSL. The magnetic field assisted heterogeneous device assembly was the focus of the talk by Vijay Kasisomayajula of NJIT and Der-Ray Huang of NDHU spoke on organic thermal

mode photo-resists. Ruihong Zhang of Purdue University presented her excellent results on the hydrothermal synthesis of ZnO thin films for printed electronics, preceded by an impromptu discussion on some exciting results of silver layer instability in SnO₂/silver/SnO₂ trilayer on silicon by Carol Handwerker of Purdue University.

Sufian Abedrabbo of the University of Jordan, NJIT and Stevens Institute of Technology reviewed his results of light emission in spin-coated erbium-doped silica sol-gel films on silicon. Asahel Banobre of NJIT proposed a metal diaphragm based magnetic field sensor. Finally, Dongguo Chen of NJIT spoke on optical and electronic properties of III-V nitrides.

Student Awards, sponsored by *ICE Science Journal*, *Emerging Materials Research*, recognized the following students for their excellent presentations:

1st place: Manisha Dixit, Ohio State University

2nd place: Ruihong Zhang, Purdue University

3rd place: Vijay Kasisomayajula, NJIT

—Submitted by Nuggehalli M. Ravindra