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Foreword

Jagdish (Jay) Narayan is the John C.C. Fan Family distinguished chair professor and is the director of the NSF Center for Advanced Materials and Smart Structures at North Carolina State University. Jagdish holds a Bachelor's degree (1969) from the Indian Institute of Technology (Kanpur, India) and his Master's (1970) and Postdoctoral (1971) degrees, in materials science and engineering, from the University of California, Berkeley. He worked as a research metallurgist at Lawrence Berkeley National Laboratory (1971–72), before joining Oak Ridge National Laboratories in 1972. At ORNL, he was the head of the thin film and electron microscopy group, before joining NCSU in 1984 as a professor and the director of the Microelectronics Center of North Carolina. While at NCSU, he also served as the director of the Division of Materials Research (1990–92) at the National Science Foundation.

Professor Narayan has published more than 1,000 scientific papers, edited 9 books, and obtained more than 25 patents. He is internationally known for his contributions to thin film epitaxy, defects and interfaces, nanotechnology, laser processing, semiconductor doping, and novel materials. These contributions have won three IR-100 Awards from *Industrial Research Magazine* (now *R&D Magazine*) for new materials and technologies. In recent years, Narayan has pioneered and patented a new concept of domain epitaxy in which an integral number of lattice planes of the film match those of the substrate. Narayan's inventions on domain matching epitaxy and fundamental advances in defects and interfaces address a major grand challenge for the next-generation solid-state devices.

This special issue of the *Journal of Electronic Materials* is in celebration of Jagdish's 60th birthday. Thirty five talks were presented in a symposium entitled "Frontiers in Thin Film Growth and Nanostructured Materials: A Symposium in Honor of Prof. Jagdish Narayan." This symposium was sponsored by the Thin Films and Interfaces Committee of the TMS Electronic, Magnetic & Photonic Materials Division (EMPMD). It was held in San Francisco, CA, from February 13 to 17 as part of the 2005 TMS Annual Meeting. Eleven of these talks have been presented as peer-reviewed research papers in this special issue. A broad range of topics related to fundamental and applied aspects of materials science and engineering has been covered in these eleven papers. The role of defects, dislocations, grains, grain boundaries, and interfaces in relation to a variety of processes for the fabrication of nanomaterials and nanodevices have been discussed in these articles. The guest editors are thankful to the speakers, session chairs, authors, and reviewers for their participation. We acknowledge with thanks the assistance of one of our graduate students, Ms. Sujatha Palani, and Mrs. Pushpa Ravindra in preparing this special issue. We are thankful to Theodore C. Harman of MIT Lincoln Laboratories and Ms. Shirley Litzinger and Ms. Trudi Dunlap of TMS for their support.

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