Preface

The 13th International Symposium on Applied Electromagnetics and Mechanics (ISEM 2007)

This volume of the International Journal of Applied Electromagnetics and Mechanics is a Special Issue containing selected papers presented at the 13th International Symposium on Applied Electromagnetics and Mechanics (ISEM 2007) that was held successfully from 9–12 September 2007 in East Lansing, Michigan, USA. ISEM 2007 was organized by the Japan Society of Applied Electromagnetics and Mechanics and the Department of Electrical and Computer Engineering at Michigan State University. This international symposium started in the year 1988 in Japan and is held bi-annually. As in past years, ISEM 2007 was focused on basic science, early engineering developments and the application of emerging technologies to electromagnetics and mechanics. The Symposium covered a variety of topics including electromagnetic devices, sensors and actuators, smart materials, numerical modeling and optimization, and biomedical engineering. The purpose of the symposium is to provide a forum for exchanging ideas and discussing recent developments and results.

As part of the 13th Symposium, there was also a Special Session on Maintenance Engineering. This session focused on structural safety evaluation practices in the nuclear power industry covering topics such as inspection techniques, maintenance and plant life extension practices, and educational programs for training personnel and examples of international collaboration in this regard. These topics were particularly relevant in the context of renewed worldwide interest in designing and building a new generation of power plants. New designs should follow practices that address important issues of inspectability and maintainability. This special session was scheduled on the second day of the Symposium and included two keynote lectures, poster presentations, and a panel discussion held in the evening.

About 180 papers covering both theoretical as well as applied research topics from 21 different countries were submitted. Following a peer review process, a total of 130 papers were presented at the conference. Students from several universities in Japan, Korea, Italy and USA participated in the Symposium.

The conference started on all 3 days with a plenary session. A total of 5 keynote lectures were presented by distinguished speakers. The regular papers were organized into 18 sessions including oral and poster presentations. The keynote talks are listed below.

1. “Electromagnetic Analysis of Plasmon Resonances in Nanoparticles,” Dr. Isaak D. Mayergoyz, Professor, Electrical and Computer Engineering Department, University of Maryland, College Park, MD, USA.
5. “Science and Engineering Activities at the National Superconducting Cyclotron Laboratory,” Dr. Konrad Gelbke, Director, National Superconducting Cyclotron Laboratory, Michigan State University.

The Symposium included a well attended Panel Discussion on Maintenance and Reliability Issues in the Nuclear Industry on Tuesday evening. The Panelists and topics addressed by each Panelist are:

1. Mr. Ken Huffman, NDE Center, Electric Power Research Institute, USA – “U.S. Perspectives on Nuclear Power Plant Maintenance and Equipment Reliability”

The ISEM 2007 Organizing Committee would like to acknowledge the generous sponsorship of JSAEM and thank the International ISEM Steering Committee for its advice and guidance. The Organizing Committee would particularly like to express its gratitude to Professors K. Miya, T. Takagi and F. Kojima for their support and extensive involvement. We thank all the participants, speakers, session chairs and reviewers for their valuable contribution in making the symposium interesting and fruitful.

We express our sincere thanks to the Editorial Board consisting of Professor Edward Rothwell, Professor Robert McGough, Professor Pradeep Ramuhalli, Professor Xiaobo Tan and Dr. Zhiwei Zeng for coordinating the reviews of all the manuscripts in a timely manner. Lastly, we express our sincere gratitude to Ms. Linda Clifford for her unstinted help and support during the entire conference and providing additional help with this special issue.

Co-Chairs: Lalita Udpa & Satish Udpa

Michigan State University, East Lansing, MI, USA