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## Preface

It is a great honor for me to welcome you to the *16th edition of the International Symposium on Applied Electromagnetics and Mechanics (ISEM)* which takes place on the campus of Université Laval in Québec City, Canada this week (July 31st to August 2nd, 2013)! Interestingly, previous symposia were held in Austria, China, France, Germany, Italy, Japan, Korea, United Kingdom, and United States. The 16th edition is thus the first visit of ISEM to Canada!

As in the past, ISEM 2013 is focused on the application of electromagnetics and mechanics in a number of disciplines. Specifically, the symposium provides a forum for exchanging ideas and discussing recent developments in ISEM areas. This abstract booklet reflects the symposium emphasis on both basic science and early engineering developments. From its content, it becomes evident that the symposium strongly encourages practical application of emerging technologies to problems of direct relevance to industries. Consequently, both theoretical as well as applied research topics are of interest and will be discussed this week.

Edition after edition, ISEM has kept the tradition of being a successful event with high level keynote lectures (five this year), paper and poster presentations. We are therefore particularly grateful to our keynote speakers:

- Dr. Alain BLOUIN from Industrial Materials Institute, National Research Council, Canada on "Materials NDT in Canada".
- Prof. Dr. Gerd DOBMANN, Fraunhofer-IZFP, Germany on "R & D to Electromagnetic NDT in the German Nuclear Safety Research Program - Material Characterization of Ageing Phenomena and Online Monitoring of Fatigue and Fracture-Mechanical Tests".
- Prof. Dr. Masato ENOKIZONO, Oita University, Japan on "Vector Magnetic Characteristic Technology for Development of Super Premium Class Electric Motor with High Efficiency".
- Prof. Dr. Randolf HANKE, Fraunhofer IIS , Germany on "Computed Tomography for Material Inspection and Characterization".
- Dr. Vincent MAZAURIC, Schneider Electric, France on "Reliability of Electric Systems".

More than 230 abstracts will be presented this week and abstracts of these accepted papers are included in this booklet and also on the symposium website<sup>1</sup> which will be updated later on with supplemental information about the event such as awards, news and photos highlighting the key moments of the week, etc.!

Not to be missed this week are obviously the keynote lectures on areas of emerging interest from prominent experts, the paper and poster sessions, the Award ceremony, the Welcome cocktail, and the Banquet at the Huron People Traditional Site.

<sup>1</sup><http://isem2013.gel.ulaval.ca/home/>

This edition of the Symposium is also unique since the *VIIth edition of the International Workshop on Advances Signal Processing for NonDestructive Evaluation* (IWASPNDE, Quebec Workshop Series) takes place as a simultaneous joined event this week<sup>2</sup>. Workshop sessions will be held on Friday and all are invited to attend. IWASPNDE, with a four-year gap between editions, also has a long tradition since the first edition took place in 1987.

From Table 1, we note that a total of 203 participants from 16 countries are participating in ISEM 2013. This makes the event a truly international event.

As partners in the success of this week, the help of the Conference Committee (Table 2) is recognized as is the support of the Japan Society of Maintenology, the Japan Society of Applied Electromagnetics and Mechanics and Université Laval, including my own Electrical and Computing Engineering Department and staff. The participation of our exhibitors is also appreciated<sup>3</sup>. I would like also to point out the dedicated work of all of our student staff and particularly of our assistant, Ms. Clémence Gaborieau, better known as «quebec@gel.ulaval.ca» or «Ms. ISEM 2013»! Her tenacious work is deeply acknowledged.

I will conclude these remarks by wishing all of you a fruitful week, full with stimulating talks, thought-provoking discussions and meetings of old and new faces! I would also like to thank you all for your participation which is essential to the success of ISEM 2013.

Enjoy your week, enjoy ISEM 2013 and enjoy beautiful Québec City!

Xavier Maldague  
Chair, ISEM 2013  
Québec City (Canada) July 2013

**Table 1: Participants per Country**

<i>Country</i>	<i>Count</i>
China	69
Japan	50
South Korea	35
Brazil	9

<sup>2</sup><http://intl.gel.ulaval.ca/>

<sup>3</sup>Infolytica Corporation (Montreal, Canada), IOS Press BV (Amsterdam, The Netherlands), JENOPTIK | Defense (Jupiter, USA), Visioimage (Quebec City, Canada), Université Laval (Québec City, Canada).

Canada	8
Germany	8
Poland	6
France	5
Italy	4
USA	3
Russia	2
Algeria	1
Belgium	1
Slovakia	1
UK	1
<b>Total</b>	<b>203</b>

**Table 2: ISEM 2013 Local Committee Members**

Abdelhakim Bendada	Electrical and Computing Engineering Department, Université Laval, Quebec City, Canada
Marc Genest	Institute for Aerospace Research, National Research Council, Ottawa, Canada
Clemente Ibarra-Castanedo	Electrical and Computing Engineering Department Université Laval, Quebec City, Canada
Daniel Lévesque	Industrial Materials Institute, National Research Council, Boucherville, Canada
Catalin Mandache	Institute for Aerospace Research, National Research, Ottawa, Canada
Louis St-Laurent	INO - National Optics Institute, Quebec City, Canada