

Preface

The International Conference on Experimental Mechanics held in Poitiers, France, July 4-9, 2010 is the fourteenth congress of a series started more than fifty years ago in Delft, Netherlands. Since 1959, this congress takes place around every four years in a European country. Its meaning is to promote world-wide cooperation among scientists and engineers concerned with experimental mechanics of solids and structures. Experimental methods have been successful to increase the knowledge of physical phenomena, to further the understanding of the behaviour of materials, structures and systems; and to provide the necessary physical basis and verification for analytical and computational approaches to the development of engineering solutions.

ICEM14 was organized under the auspices of the European Association for Experimental Mechanics (EURASEM) and was sponsored by the French Society of Mechanics (AFM), the Group for Advanced Methods in Stress Analysis (GAMAC), the French "Ministère de l'Enseignement Supérieur et de la Recherche" (MESR), the National Centre for Scientific Research (CNRS), the University of Poitiers, the British Society for Stain Measurement (BSSM), the Society for Experimental Mechanics (SEM), the Japanese Society for Experimental Mechanics (JSEM). The financial supports brought by the city of Poitiers and the regional council of Poitou-Charentes are greatly appreciated.

ICEM14 focuses in all aspects of experimental mechanics and includes sessions devoted to advanced developments applied to structures, materials and environmental issues with emphasis given to thermomechanics, biomechanics, fluids-solids interaction... The technical program of ICEM14 is the product of hard work and devotion of more than 70 world leading experts to whom I am greatly indebted. The success of ICEM14 relied solely on the dedication and large work of the members of the Scientific Advisory Board. As chairman of ICEM14, I am honoured to have them on the Board and have worked closely with them for a successful conference.

This volume contains two-pages abstracts of the 332 full papers accepted at ICEM14. An accompanying CD contains the full length papers. The abstracts of each plenary lecture are also included. The remaining abstracts are arranged in 18 tracks (99 abstracts) and 27 special symposia/sessions organized in three parts: A-Properties of materials and structures (95 abstracts), B-Measurement Techniques (52 abstracts), C-Experimental methods, analysis and applications (86 abstracts). The papers of the tracks have been contributed from open call, while the papers of the symposia/sessions have been solicited by the respective organizers.

The attendees of ICEM14 had the opportunity to interact with the most outstanding world leaders and got acquainted with the latest developments in the area of experimental analysis of engineering, materials and structures. I am convinced that this publication (abstract book, CD of the full length papers or on the European Physical Journal portal: www.epj-conferences.org) will be an important and useful tool for future research works. It is my hope that those of the scientific community in optics, mechanics, physics, or engineering who wish to enter this field or study in depth, will find these materials to be a basic tool for the development of major ideas and an important source of bibliography. ICEM14 was a forum of university and industry interaction and exchange of ideas in an area of utmost scientific and technological importance. The participants of ICEM14 came from 35 countries. Roughly speaking 80% came from Europe, 4% from the Americas, 10% from the Far East and 6% from other countries.

I am happy and proud to have welcomed in Poitiers well-known experts who came to discuss problems related to experimental mechanics. Poitiers, by its university and its engineering schools, constitutes for numerous decades on the national territory, an important pole of mechanics (20% of the French potential in mechanical engineering) recognized for its dynamism and the originality of its works. Numerous local researchers contributed to the international brilliance of the French mechanics. The French mechanics community, by offering in Poitiers the organization of the 1st French congress of mechanics in 1973, marked a national recognition in the activities and the skills of the mechanics at Poitiers University. The serenity and charm of the medieval city and also the places of relaxation in the wonderful park of FUTUROSCOPE, constitute an ideal environment to stimulate the meetings and the scientific discussions.

I would like to very sincerely thank the authors who have contributed to this volume, the symposia/sessions organizers for their hard work and dedication and the referees who reviewed the quality of the submitted contributions. Our sponsors' support, give in various forms, is gratefully acknowledged. The tireless effort of the members of the Organizing Committee as well as of other numerous individuals, and people behind the scenes is deeply appreciated.

Welcome in Poitiers!

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Fabrice BREMAND
Editor