engineering proceedings

Editorial

Preface of the 53rd Conference of the Italian Scientific Society of Mechanical Engineering Design (AIAS 2024) †

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1. Introduction

The Italian Association for Stress Analysis (AIAS) was founded in 1971 by researchers from academia, research centers and industry. AIAS was intended as a community which discusses, shares and develops scientific knowledge related to all technical aspects of stress analysis. From an initial focus on experimental techniques, AIAS went on to contribute considerably to the development of modern numerical methods and computational techniques for mechanical engineering design. In 2015, AIAS evolved into the Italian Scientific Society of Mechanical Engineering Design.

Today, AIAS is an institutional partner that supports academia in the subject area of mechanical engineering design. Every year, AIAS organizes a technical conference offering the possibility to present research updates, share new ideas and foster collaborations. The AIAS conference has become a fundamental event for all those interested in current developments in mechanical engineering design and stress analysis, where they can meet researchers and testing equipment and software developers.

The 53rd AIAS Conference was held in Naples, Italy. The response of researchers and students was outstanding: over 240 oral contributions were presented during the three days of the conference, with four parallel sessions and a time slot of 15 min assigned to each presenter. In addition to the thematic sessions on AIAS traditional subjects, special sessions on *additive manufacturing*, *energy methods for structural analysis*, *circular design in mechanical engineering*, and *mechanical behavior under extreme conditions* were successfully organized with the contribution of the AIAS technical committees. All sessions were continuously monitored by the organizers to provide technical support. The conference ran smoothly, and participant feedback was incredibly positive.

Among all contributions presented at the conference, 54 were selected to be published in this volume after peer review. This was made possible thanks to the active participation

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of all AIAS members, the work of the AIAS Scientific Committee panel (Professors Umberto Galietti (AIAS Scientific Coordinator), Gabriele Arcidiacono (AIAS Scientific Coordinator for External Relationships), Enrico Armentani, Davide Castagnetti, Virgilio Fontanari and Aurelio Somà) and the conference papers reviewers. Their outstanding contribution is gratefully acknowledged.

Scope and Topics

- Fatigue and fracture;
- Automotive;
- Materials at extreme conditions;
- Mechanics of materials;
- Biomechanics;
- Additive manufacturing;
- Composite materials;
- Circular design;
- Modeling;
- Dynamics;
- Experimental mechanics;
- Mechanical design;
- Energetic methods for stress analysis;
- Railway engineering;
- Joining techniques.

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