

PREFACE

The 7th International Scientific Conference: NEWTECH 2022 – Advanced Manufacturing Engineering and Technologies was organized by National Institute of Applied Sciences of Rennes – INSA Rennes, France. It was held between 8th-10th of September 2022 in Rennes, France and was supported by the French Mechanical Association, Manufacturing'21 and ITCM Center of UDGJ Galati, Romania.

The situation with COVID-19 imposed restrictions on holding mass events and travelling. The health of the participants is key and so, the organizing committee, encouraged by the eagerness of the participants to share their scientific work despite the circumstances, decided to hold the conference both in life and online version.

The 7th International Scientific Conference: NEWTECH 2022 – Advanced Manufacturing Engineering and Technologies provides a forum where recent advances and future directions in the manufacturing processes and forming are discussed by scientists and engineers from academia and industry worldwide. The topics covered are of great interest for academics and for professionals (engineers and researchers) from industry involved in traditional and novel forming and manufacturing technologies for conventional and emerging materials.

The 7th International Scientific Conference: NEWTECH 2022 – Advanced Manufacturing Engineering and Technologies takes place in the year in which the France celebrates Mechanics Year during 2021-2022 academic period.

A total of 20 oral and 6 online presentations and from 10 worldwide countries, Cech Republic, France, Greece, Portugal, Serbia, Spain, Bulgaria, Romania... are registered including:

- 4 plenary lectures given by renowned experts from academia;
- 30 submitted abstracts and 20 oral presentations organized in 8 general sessions.

The all oral and online presentations are composed around of 20 peer-reviewed full papers (between 6 and 14 pages each one).

All the papers have been reviewed by two expert referees in their relevant fields. The papers selected for the volume depended on their quality and relevancy to the conference.

Free access to all the conference papers will be granted to all the registered attendees. However, the peer-reviewed full papers and a part of the plenary lectures will be published after the conference, in the open access proceedings by EDP Sciences on MATEC Web of Conferences ISI Conf. Journal Series.

In the proceedings, the first section contains a part of the plenary lectures papers delivered by the renowned scientists. These experts were invited to highlight various topics of the conference so as to provide a perspective on the future of scientific and industrial challenges within the scope of the conference. The second section consists of oral presentations which cover Cutting, Milling, Metrology, Bulk Forming, Hydroforming, Mechanical behaviour, Process Control, Welding... The authors report advances in aspects such as numerical techniques, including artificial intelligence.

The main goal of NEWTECH 2022, under the given conditions, was successfully achieved - to bring together researchers from academia and industry, scientists and experts in engineering and technology to address new challenges, share solutions and discuss future research directions.

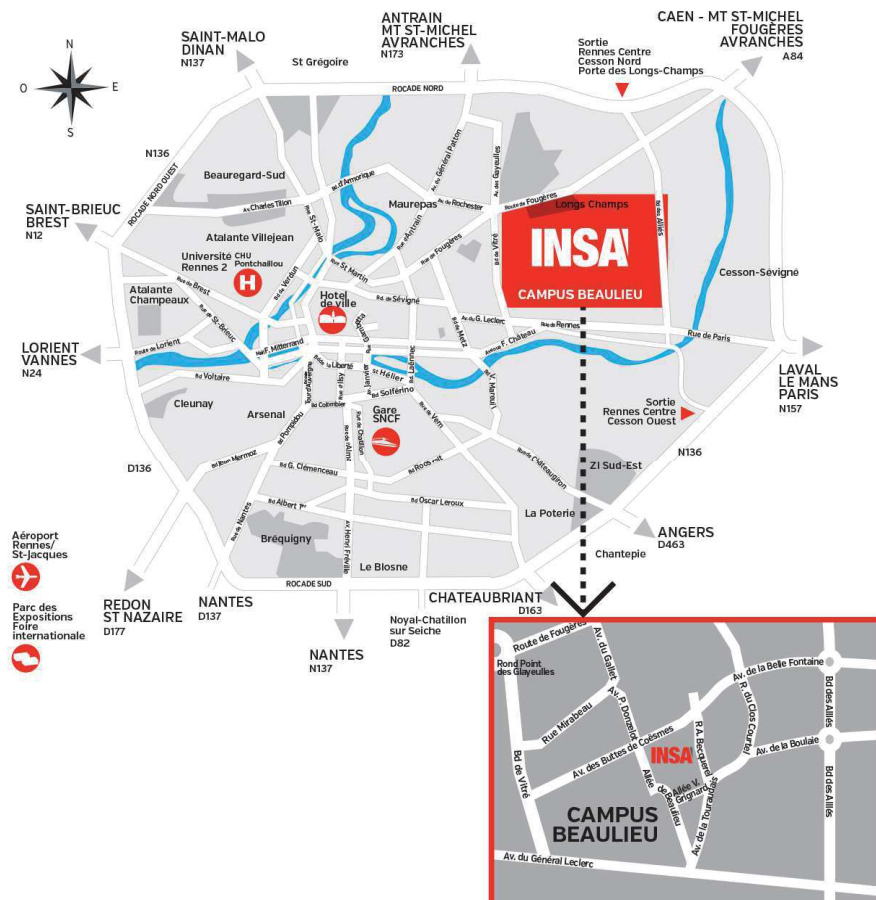
We would like to thank all those researchers who have trusted the conference and who recognized NEWTECH 2022 as an appropriate forum to share their recent developments and learn about the new trends in the field of technical sciences and engineering.

We thank all the authors for their contribution to this valuable volume. We must also thank all the reviewers for their effort, which ensured not only excellent feedbacks for the authors but also a high-quality scientific research.

Last but not least, we sincerely thank the whole team involved in organizing the NEWTECH 2020 conference.

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The 7th International Conference on Advanced Manufacturing
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Prof. Dr. Mohamed EL MANSORI,



Arts et Métiers Paris Tech, ENSAM Aix-en-Provence,
Director AM2 Transatlantic Partnership, Director Mechanics,
Surfaces and Material Processing Laboratory (MSMP-
EA7350), Head Engineering and Multi-physics of Multiscale
Manufacturing Research Group, France

**Convergent manufacturing to leverage
sustainability and digitalisation of industrial
production**



Prof. Dr. Miroslav PÍŠKA
Brno University of Technology, CZECH REPUBLIC

The new technologies for advanced joint implants

Friday, September 09, 2022



Prof. Dr. Dumitru NEDELICU
Gheorghe Asachi Technical University of Iasi, ROMANIA

Coated Biodegradable Polymers



Prof. Dr. Vidosav D. MAJSTOROVIC
University of Belgrade, SERBIA

**Management of tools in digital manufacturing. A
case study**
