

# Preface

This volume is a collection of the refereed papers selected from those submitted to the 4th International Conference on Power Transmissions (PT12), held at 20–23 June 2012, in Sinaia, Romania.

This conference aims to provide a forum for researchers, academics and industry experts to share their up-to-date findings and achievements in the field of power transmissions, and to identify the new technology requirements, needs and priorities in this field. The major conference topics, which are also reflected in the papers published in this book, include:

- Theory, Design and Experimental Researches on Power Transmissions
- Product Development, Manufacturing and Metrology
- Load capacity, structure and components
- Maintenance, operating and industrial applications
- Engineering education.

The call for abstracts stimulated excellent responses with 102 abstracts submitted, amongst of which the authors of 67 abstracts were invited for submission of full papers. All the papers submitted were peer reviewed, and, based on the review results, 59 papers were finally selected for inclusion in this book. The authors' and the referees' efforts for enhancing the quality of the papers are greatly appreciated.

This conference is jointly organised by Balkan Association of Power Transmissions (BAPT) and Romanian Association of Mechanical Transmissions (RO-AMET). Their contributions and support are sincerely acknowledged. We would like to express the gratitude for the members of the Organizing Committee, for the International Scientific Committee, organisers and members of the review panels and for the help received from colleagues and staff members involved in preparation of the events, without which the success of the conference could not have been achieved. Equally, the thanks are extended to the keynote speakers and to all contributors and delegates for their support and high-quality contributions.

In this special way, we honour the contribution of distinguished Prof. George Dobre Sr., the man who inspired and influenced the most this event (passed away shortly after the Conference).

For the Local Organizing Committee  
Dr. Eng. Mihai Robert Vladu

Between 20 and 23 June 2012, the town of Sinaia hosted the 4th International Conference on Power Transmissions (PT12). A hugely significant contribution to the organisation of the conference was that of Prof. George Dobre Sr., my father, who worked tirelessly for about 2 years on the general organisation of the conference and also on the many detailed arrangements (ranging from calls for papers to putting together and maintaining the website, communicating with authors, arranging reviews of submitted papers etc.).

He did all this while undergoing aggressive chemotherapy treatment for a cancer that he had been diagnosed with 2 years before. Although he was beginning to feel quite frail in the run-up to the conference, he was so committed to the meeting that he found a last reserve of energy to tap into and successfully chaired the conference, telling me at the end that he is very happy with the way it turned out. He passed away a month after that.

I am very proud to see that his labour of love, which he put so much work into, has been concluded and I am extremely grateful to his collaborators Asst. Prof. Sorin Cananau, Asst. Prof. Radu Florin Mirica and Dr. Mihai Robert Vladu for their contribution to the organisation of the conference as well as for what they have done since to ensure this volume sees the light of day. It is a wonderful tribute to my father's memory.

Dr. George Dobre Jr.

## **Message from Honor President of “Balkan Association of Power Transmissions”**

With this 4th Conference, we celebrate the 10th anniversary of the Balkan Association of Power Transmissions (BAPT). The field of power transmissions is rather wide. Compared to structural engineering, where everything is static, mechanical engineering has everything in motion, so one could say that Power Transmissions cover the whole spectrum of Mechanical engineering.

Power Transmissions are a scientific and technological field that is not only wide, but also complex. It comprises the various driving methods—electric, hydraulic, pneumatic, etc.—as well as a multitude of transmission machine elements—shafts, bearings, couplings, gearings, belts, chains, etc. Objects of study of these machine elements are their theoretical concepts as well as calculation,

constructions, manufacturing, testing, application and maintenance. There is probably no other international organisation as much oriented towards practice, as BAPT is. BAPT puts the creator-designer in the first place.

The considerable interest in the previous three conferences of BAPT from Balkan specialists as well as representatives of other countries clearly demonstrates that an objective international demand of both Balkan and worldwide proportions has been met. One should note that conferences on the very topic of Power Transmissions and Gearings are organised in an industrially developed country like USA and France has hosted four international Gearing congresses. Germany is no less active in the field with their regular international Gearing conferences. This is a clear indication that such organisational form is needed.

It is necessary ROAMET to be specially thanked for the effort they made to organise this conference. However, ROAMET is the only national association in Europe whose focus is mechanical transmissions.

Prof. Dr. Eng. Kiril Arnaudov

Power Transmissions

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