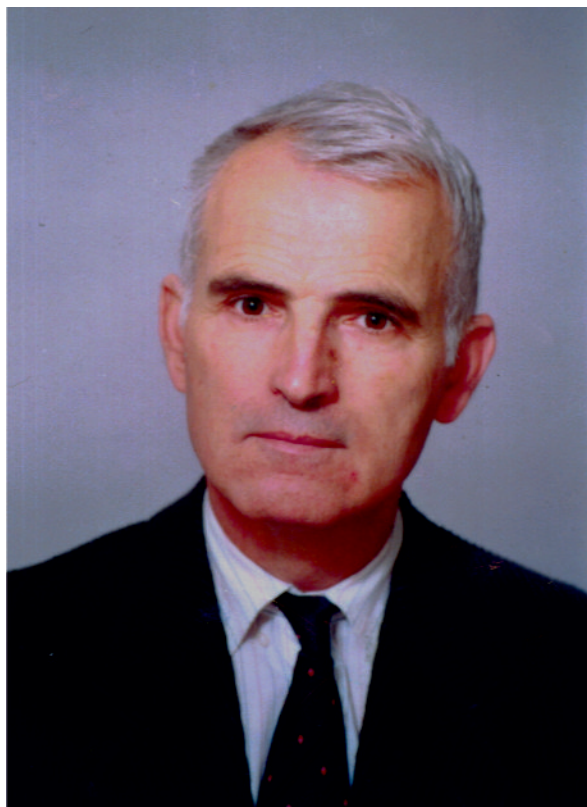


**PREFACE TO THE SPECIAL ISSUE DEDICATED ON  
THE 80<sup>TH</sup> ANNIVERSARY OF PROF. STEFAN RADEV**

This special issue is dedicated to Prof. Stefan Radev, an eminent scientist in the field of applied mathematics and mechanics, and a long-standing editor-in-chief of the Journal of Theoretical and Applied Mechanics since 1999. On 25th September 2022 he celebrated his 80<sup>th</sup> birthday.



Prof. Radev started his studies in Mathematics at Sofia University in 1960 and then continued at the Sankt Petersburg (former Leningrad State) University (SPU), where graduated with a speciality in mechanics. In 1972 he defended his PhD thesis at the same university under the guidance of Prof. S.V. Vallander on problems of rarefied gases. Shortly after his return to Sofia, prof. Radev started working as a research fellow at the Institute of Mathematics and Mechanics of the Bulgarian Academy of

Sciences and changed his interests to the stability of liquid jets. He obtained completely new results on the stability of liquid compound jets, some of which entered his thesis for “Doctor of Sciences in Mathematics” in 1987.

Prof. Radev performed several important scholarships at the Technical University of Eindhoven, Netherlands, at the Tokai University, Hiratsuka, Japan and at the Joint Institute for Nuclear Research, Russia. But the most important influence on his scientific evolution occurs his collaboration with l’Institut Universitaire des Systemes Thermiques Industriels (IUSTI), Aix-Marseille University, Marseille, France, where he has been periodically visiting professor and coordinated several joint research projects between CNRS (Centre National de la Recherche Scientifique, France) and BAS, all of them treating interesting problems of textile, glass and optical fibre drawing for new material production industry. Prof. Radev has still active collaborations with the Moscow University (Russia), the Institute of Problems in Mechanics of the Russian Academy of Sciences (Moscow), Democritus University of Trace (Xanthi, Greece) and others. The considered problems are mainly in the area of flow instability, physicochemical hydrodynamics, heat and mass transfer theory and rarefied gas dynamics. The scientific papers of Prof. Radev are more than 160, from which more than 90 are published in refereed journals including those with impact factors.

Prof. Radev has written 2 students’ textbooks - one in Analytical Mechanics [1] (in collaboration with A. Anchev and L. Lilov) and one in Fluid mechanics [2] (in collaboration with S. Tabakova), and a scientific monograph on modern concepts of instability and turbulence (with co-authors S. Panchev and N. Vitanov) [3].

For the last several years we worked together with Prof. Radev on problems connected with blood flows in arteries with or without aneurysms (in the framework of a NSF project). These topics gave us a new direction of research, on which we still make investigations. The latest one is included in this special issue. The contributors in this issue have been invited as participants in common research with Prof. Radev or working on similar to his scientific problems of interest.

Between 1987 and 1992 prof. Radev was the director of the Institute of Mechanics of the Bulgarian Academy of Sciences. Prof. Radev was head of the former Laboratory of Physical and Chemical Hydrodynamics and of the Department of Fluid Mechanics after its establishment in 2010 till his retirement in 2014. He is Chairman of the Bulgarian National Committee for Theoretical and Applied Mechanics and the Bulgarian representative member of the General Assembly of the International Union of Theoretical and Applied Mechanics (IUTAM) for more than 25 years. In 2004 prof. Radev was elected as a member-correspondent of the Bulgarian Academy of Sciences. For his activities in the area of mechanics and mathematics, he was

awarded the 'Cyril and Methodius' order II<sup>nd</sup> and I<sup>st</sup> degree and the highest award of the Bulgarian Academy of Sciences: 'Marin Drinov' honouring sign in decoration.

His colleagues, former and present students and friends extend their warmest congratulations to him on his 80th birthday!

I am honoured to serve as a guest editor of this special issue, and want to take this opportunity to thank the authors, and also the anonymous reviewers for their assistance in the successful completion of this task.

Guest editor prof. Sonia Tabakova  
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