

Editorial

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Since 2007 *High Temperatures-High Pressures* regularly publishes invited articles selected from presentations given during the International Workshop on Subsecond Thermophysics (IWSSTP). These well-established workshops take place every three years at various locations. They are aimed to provide a forum for exchange of knowledge, experience and ideas on the latest developments and trends in the field of thermophysical property measurement. A special focus is given to measurements under extreme conditions, at high temperatures or pressures, and/or on the study of the behavior of matter under conditions close by or far away from thermodynamic equilibrium. Timescales range from milliseconds to picoseconds, necessitating rapid resistive or inductive (volume) heating, laser pulse heating, levitation techniques on ground and under microgravity, as well as other recently developed fast investigation techniques.



The 12th IWSSTP, which this present special issue is devoted to, took place from June, 3rd to June, 6th, 2019. It was a pleasure and a great privilege for me and the Institute of Materials Physics in Space of the German Aerospace Center (DLR), Cologne to organize the current event and welcome the international community as hosts.

This time, the 12th IWSSTP coincided with the 50th anniversary since the launch of *High Temperatures – High Pressures* which gave reason to celebrate.

The workshop was attended by 66 participants from 15 different countries. 17 students and Ph.-D.-students attended, their importance for the future of the field should not be underestimated. 38 participants gave oral contributions and 18 posters were displayed. Among the oral presentations, 8 were invited ones. During the 3-day-program, the 56 scientific contributions were presented in 12 oral sessions and one poster session covering the topics “pulse heating”, “surface tension”, “aerodynamic levitation”, “data and simulation”, “levitation techniques”, “structure and dynamics”, “radiation and thermal properties”, as well as “oxide materials”.

The participants are active in 15 different countries. Most participants work in Germany (21), followed by Japan (15), USA (8), Russia (6), Austria (6), France (4), South-Korea (2) and finally Italy, Canada, Norway, Poland, Sweden, Switzerland, Serbia, and Ukraine, each with one participant. These numbers demonstrate the impressive international nature of the workshop.

After the official end of the scientific program, the rather unofficial part kicked off. This consisted of a guided tour through the Old Town of Cologne as well as an evening stop in one of the local breweries. On the next day (June 7th), DLR offered an optional tour of the Campus which was expanded at short notice to include a visit to the ESA Astronaut Training Center. Thus, the participants of the workshop were able to receive very instructive, practical and technical insights into the kind of big-science that the implementation of thermophysical property experiments under weightlessness is.

The workshop continues to enable the exchange of the latest ideas, trends and technologies in the field. The quality of the contributions was extremely high. This stimulated lively and fruitful scientific discussions aided by the collegial atmosphere of the workshop. 14 publications were published in the present special issue of “*High Temperatures – High Pressures*”. This is a new peak in the record of the workshop. All participants agreed that the “12th International Workshop of Subsecond Thermophysics (IWSSTP 2019)” could be considered a great success.

At this point, I sincerely wish to thank everybody who contributed to this success. First of all, I wish to thank the International Organizing Committee who granted us this unique opportunity and expressed their great confidence in us. Moreover, backing by the head of the Institute, Prof. Dr. Andreas Meyer, and his readiness to sponsor the event are gratefully acknowledged as well as the support from DLR’s administrative services. Financial funding was also offered by the German Science Foundation (DFG) and part of the social program was supported by OCP science. Last, but not least I wish to thank ESA’s European Astronaut Training Center for their help during the optional tour.

Special thanks go to the following persons who were directly involved during all stages of the workshop and supported its preparation and its conduction: The members of the International Organizing Committee: Konstantinos Boboridis (Institute for Transuranium Elements, EC-JRC, Germany), Ivan Egly (RWTH-Aachen University, Germany), Erhard Kaschnitz (Austrian Foundry Research Institute, Austria), Gernot Pottlacher (Graz University of Technology, Austria),



FIGURE 1
Conference photo of the “12th International Workshop on Subsecond Thermophysics (IWSSTP 2019)”.

Mikhail Sheindlin (Joint Institute for High Temperatures, Russian Academy of Sciences, Russia) and Natalia Sobczak (Foundry Research Institute, Krakow, Poland). Ivan Egry is additionally acknowledged in his function as Co-Editor-in-Chief of *High Temperatures–High Pressures* for managing the timely publication of this issue.

This workshop would not have been possible without the strong support and the excellent assistance given by the highly experienced team of DLR’s event management department lead by Petra Naoum: Rebecca Bartkowski, Svetlana Saburova, and Anne Scheuble. Together with Kim Prochnow (Institute of Materials Physics in Space, DLR), they did an excellent job behind the scenes as well, as in front of them, to keep the show running. Courteous contributions of ideas and actions are also acknowledged from the following persons: Harriet Berkahn (DLR), Marc Engelhardt (DLR), Elisabeth Jambor (ESA), Florian Kargl (DLR), Elisabeth Kuhl (DLR), Anthony Rawson (DLR), Andreas Orth (DLR, ESA), and Fan Yang (DLR).

While all persons involved in organizing a workshop do their very best in order to optimize the conditions under which it can be carried out, it is always the participants who finally give the presentations, and contribute to the discussions. It is them, who fill the workshop with life and make it successful. Consequently, the greatest acknowledgement is owed to all participants, to the audience, to the speakers, especially to the invited ones, to poster presenters, to session chairmen and to chairladies.

By decision of the International Organizing Committee, the next IWSSTP, the 13th International Workshop on Subsecond Thermophysics (IWSSTP 2022), will be organized by Prof. Dr. Douglas Matson from Tufts University, Medford, MA, USA. According to the announcement and the current planning, the next workshop will take place in 2022 at Talloires Conference Center, Talloires, France.

Looking forward to meeting you again at the 13th IWSSTP,

Jürgen Brillo (Chairman of the 12th IWSSTP)
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