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EDITORIAL

Selected topics from the 21st International Shock Interaction Symposium, Riga, Latvia, August 3rd–8th, 2014

I. Krassovskaya[1] · **A. Podlaskin**[1]

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This issue contains selected papers that were presented at the 21st International Shock Interaction Symposium (ISIS-21) which was held from August 3rd to August 8th, 2014, in Riga, Latvia. The biennial ISIS is the heir to the Mach Reflection Symposia and Shock–Vortex Interaction Workshops, so its origin dates back to 1981. The symposium is focused specifically on various aspects of shock (blast) interaction phenomena. Before the 21st meeting, it had been decided to restrict the subject area of the submissions in comparison with the International Shock Wave Symposia that cover a much broader subject area. With this provision, the submissions to ISIS-21 were strictly limited to shock (blast) wave propagation, reflection and diffraction, shock (blast) wave focusing, shock/shock interaction, shock/vortex interaction, shock/boundary layer interaction, shock/obstacle interaction, and shock/bubble (particle) interaction.

According to the contemporary standards for international events of this scope, every contribution was thoroughly inspected by two independent reviewers, first as a one-page abstract, and only upon their approval, the authors were invited to submit a full-length paper (4–6 pages). The full papers were then subjected to further inspection (usually by the same reviewers as at the initial stage). In case of contradictory suggestions of the two reviewers, a third independent opinion was requested. With the described two-stage procedure, thanks to the efforts of the International Review Committee, 56 papers were selected for presentation at the symposium. Of those, 53 were given as presentations at the symposium. They demonstrated a high scientific level and evoked vivid interest of the audience. As is usual practice with ISIS and the Shock Wave Symposia, the participants were encouraged to submit their papers to the *Shock Waves Journal*. The authors were informed that all submissions would be subjected to the same rigorous review procedure as a regular submission to the *Shock Waves Journal,* so it was essential that all manuscripts met the requirements of archival quality.

Indeed, as soon as the submissions to the special issue of the *Shock Waves Journal* began, each paper was reviewed by at least two independent referees, each of whom was an internationally recognized expert in the field.

Eleven papers from the symposium were submitted by the deadline of May 1st, 2015, of which one was withdrawn by the authors after an initial "major revision" decision, and one was reclassified as a technical note and thus resubmitted. Out of the remaining ten papers, eight (seven original papers and one technical note) were eventually accepted upon two (three manuscripts), three (three manuscripts), or even four revisions (two manuscripts), after a consensus had been reached by the referees and editors. Two papers are still in processing and will be published, if accepted, in a subsequent regular issue.

As the subject area of ISIS-21 was rather restricted, the papers selected for the *Shock Wave Journal* also cover quite a narrow field of science. The current issue includes papers on the topics of:

- the production of Mach waves and their dynamics in the supersonic jet mixing layer by shock–vortex interaction
- the interaction of a shock wave with quasi-vortical isotropic turbulence
- interaction of a uniform co-flow and the diffracting shock wave
- the stability of regular reflection in the dual solution domain

✉ A. Podlaskin
a.podlaskin@mail.ioffe.ru

[1] Ioffe Institute, 26 Polytechnicheskaya Str., 194021 St. Petersburg, Russia

- the dynamics of a high-speed shock-induced flow near an open end of a shock tube
- the methodology of reconstruction of a blast event in open space
- the interaction of multiple simultaneous and non-simultaneous blast waves
- the interaction between two independent shock waves emerging perpendicular to each other in a common space.

The contributions bear great importance both for fundamental science and for practical purposes. Three papers present results based on experiments, two contain results of numerical simulation, and three papers discuss results obtained both experimentally and numerically. Geographically, these papers selected from those presented at the Shock Interaction Symposium originated from France/Germany (one), Japan (one), Russia (one), South Africa (one), UK (one), and the USA (three).

To complement the issue, we included another two papers, which were submitted to the *Shock Waves Journal* via the regular submission and review process, on topics that are closely related to the scope of the International Shock Interaction Symposia: shock oscillations in supersonic flow and shock waves in a compressible vortex/wall interaction.

Witnessing the evolution of the manuscripts under the influence of the reviewers' comments, we greatly enjoyed the improvement in their quality. Wise remarks of the referees not only helped to root out errors, but also to ensure the results were presented in a clearer, more comprehensive way. The extensive work undertaken jointly by the authors and the reviewers deserves utmost respect. With all the additions and improvements, every paper now shows a clearly identified contribution to existing global knowledge. We believe that the readers, especially those who remember the initial presentations of the same material at the symposium, will be pleased to see them in a new and better arrangement.

We would like to thank the authors who submitted their papers to this issue and then revised their manuscripts numerous times in order to ensure the best quality possible. Equally, gratitude should be expressed to the reviewers who spent much time and effort to provide extensive comments based on thorough analysis of the submitted materials. We would also like to take the opportunity to repeat how grateful we are to our Latvian partners and friends. We are greatly indebted to Prof. Ivars Lacis (University of Latvia, Riga), Ilmārs Dambe (University of Latvia Property Management Agency) and his great team of professionals, who invested a large amount of their effort and goodwill into the success of ISIS-21.

The present issue is indicative of the extensive work done by the authors, reviewers, and editors. We believe the result will serve to uphold the high scientific reputation of the *Shock Waves Journal* and to enhance knowledge in the field of shock and blast wave dynamics. We are very happy that this special issue goes to press before the next International Shock Interaction Symposium starts in Glasgow, UK. We are now passing on the baton to Prof. Konstantinos Kontis, and we cannot miss the opportunity to express our wish for the success of ISIS-22. The volume you are holding in your hands is physical evidence that the field of shock interaction is a vivid area of gasdynamic research.