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## PHD-Symposium 2021

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## PHD-Symposium 2021

From September 15 to 18, 2021, the International Symposium "Nonequilibrium Processes in Continuous Media" (PHD-Symposium 2021) was held. The symposium was devoted to the analysis of current problems in the field of non-equilibrium processes in continuous media and discussion of ways to solve them, exchange of advanced scientific achievements and practical experience, establishment of new and strengthening of existing scientific ties, creation of necessary conditions for stimulating and supporting gifted youth, dissemination and popularization of scientific knowledge and innovative technologies. The languages of the Symposium are English and Russian.

### Symposium Chairwomen:

- professor Tatyana P. Lyubimova, IMSS UrO RAS, Perm, Russia;
- professor Valentina Shevtsova, University of Mondragon, Spain.

The local organizing committee consisted of employees of IMSS UrO RAS and PSNIU.

The work plan of the Symposium included a discussion of the current state and current issues of mechanics and physics of continuous media in the following areas:

- generation and evolution of large-scale vortex structures in turbulent flows;
- heat and mass transfer in atmosphere and ocean, generation of magnetic fields;
- formation of dynamic and dissipative structures at interfaces, hydrodynamics of systems with fluid interfaces;
- hydrodynamic instability and transition to complex non-periodic and chaotic regimes;
- acoustic and wave processes in inhomogeneous media;
- non-stationary processes in complex fluids and in disperse media;
- global climate changes and ecosystems;
- models of the deformational behavior and fracture of solids;
- advanced materials and technologies;
- computational technologies in continuous media mechanics.

Due to the difficult epidemiological situation, the Symposium was held in an online format, using the Zoom communication software. On September 15, 2021, test inclusions were held for all participants.

The Symposium was attended by foreign and Russian scientists, postgraduates and students. There were 125 participants in total. The Conference program included 117 reports (including 12 plenary, 82 oral sectional and 23 poster). The Symposium was held in two sections (9 and 3 sessions, respectively), taking place in parallel. To avoid dependence on time zones, plenary lectures of 30 minutes each were scheduled and held in the middle of each scientific day. 15 minutes were allocated for the sectional report, including discussions. For poster presentations, three-minute pre-recorded presentations were provided with the opportunity to ask questions to the speaker.

Among the plenary lecturers, speakers and listeners were representatives of:

- seven countries: Russia, France (Marseille, Paris, Nancy), Germany (Berlin, Bayreuth), Israel (Haifa), Spain (Madrid, Mondragon), Belgium (Brussels), China (Beijing, Chongking, Zhejiang, Wuhan);
- fifteen cities of the Russian Federation: Perm, Khabarovsk, Syktyvkar, Moscow, Krasnoyarsk, Izhevsk, Nizhny Novgorod, Vladikavkaz, Yekaterinburg, Novosibirsk, Barnaul, Kazan, Krasnodar, Rostov-on-Don, Obninsk.

Among the Perm participants of the Conference were representatives of Perm State National Research University, Perm National Research Polytechnic University, Perm State Humanitarian and Pedagogical University, Institute of Continuum Mechanics of the Ural Branch



Representatives of major universities and scientific centers of the world were invited as plenary lecturers:

- professor Pierre Sagaut – University of Aix-Marseille, Marseille, France;
- professor Jadran Vrabec – Technical University of Berlin, Berlin, Germany;
- professor Werner Köhler – University of Bayreuth, Bayreuth, Germany;
- professor Konstantin Morozov – Technion, Haifa, Israel;
- professor Alexander Nepomnyashchy – Technion, Haifa, Israel;
- professor Laurette Tuckerman – Higher School of Physics and Chemistry, Paris, France;
- professor Lev Filippov – University of Lorraine, Nancy, France

- academician of the Russian Academy of Sciences, Dmitry Markovich – S.S. Kutateladze Institute of Thermophysics SB RAS, Novosibirsk, Russia;
- professor Evgeny Ermanyuk – Lavrentiev Institute of Hydrodynamics SB RAS, Novosibirsk, Russia;
- professor Nikolay Nikitin – Lomonosov Moscow State University, Moscow, Russia;
- professor Efim Pelinovsky – Institute of Applied Physics of the Russian Academy of Sciences, Nizhny Novgorod, Russia;
- professor Evgeny Demekhin – Krasnodar Branch of the Financial University under the Government of the Russian Federation. Krasnodar, Russia.

By the beginning of the Symposium, a collection of abstracts was collected and posted on the Symposium website (<http://npcm-perm.tilda.ws>). The language of the collection is English; the collection is available by direct link <https://drive.google.com/file/d/1X6aMinSMvamIdsBo1Bc-ACweHUmCfagZ/view?usp=sharing>. (short link <https://clck.ru/ae3PT>).

The Organizing Committee expresses its gratitude for the financial support of the Symposium to the Government of the Perm Region (grant D-26/009 dated 27.01.2021).

With the best regards,  
Editor, Conference Chair  
**Tatyana P. Lyubimova**

### Symposium participants



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*Valentina Shevtsova*  
Professor, Mondragon, Spain

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