



Union Internationale Pour La Science, La Technique et Les Applications du Vide
International Union for Vacuum Science, Technique and Applications
Internationale Union für Vakuum Forschung, Technik und Anwendung

13th IUVSTA School on Vacuum Gas Dynamics: Theory, Experiments and Applications

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The 13th IUVSTA School Vacuum Gas Dynamics has been organized in the framework of the IUVSTA educational program on 17-21 May 2015 in Thessaloniki, Greece. The School was designed for scientists, engineers and post-graduate students who are not experts in rarefied gas dynamics but need to apply this field in their every-day work. The aim of the School was to train the participants in applying vacuum gas dynamics and also to fill the gap between complicated theory and practical needs. The event has been co-chaired by Prof. Felix Sharipov (Brazil), Dr. Oleg Malyshev (UK) and Prof. D. Valougeorgis (Greece), who was also the Local Organizer. The lectures and practical sessions were given by the co-chairmen, as well as by Dr. Karl Jousten (Germany), Dr. Roberto Kersevan (Switzerland) and Dr. S. Naris (Greece). Forty students attended the School coming mostly from various European countries and few from USA, Canada and China. They represent research centers, universities and industries. The majority of them are Ph.D. students, young scientists and engineers, while some are senior engineers or/and group leaders. Thus, the audience was very heterogeneous in terms of the level of knowledge in vacuum gas dynamics and in terms of professional needs. This diversity of the students made the lectures quite challenging in order to meet all requirements of the participants and to answer their questions during sessions and coffee breaks.



Lecturers: F. Sharipov, O. Malyshev, D. Valugeorgis, R. Keresevan, K. Jousten, S. Naris

In total, 10 lectures and 6 practical sessions were given covering many topics in the field of Vacuum Gas Dynamics. The theoretical and computational parts were focused on kinetic theory,-kinetic models, diffusion models, gas-surface interaction, test particles and direct simulation Monte Carlo methods, while the experimental part was dedicated to methods of measurements and standards in vacuum systems and vacuum metrology. The part related to applications was about gas flows through pipes, pumps, gauges, in small and large vacuum systems using Molflow software, diffusion model, numerical codes based on Monte Carlo and discrete velocity methods. During the practical sessions, the students were requested to resolve specific exercises related to the material of the lectures. These sessions were running in two parallel groups supervised by 2-3 lecturers at the same time in order to help the students more effectively and to increase the interaction between students and lecturers. Most of the students were happily engaged in this process trying hard to get the correct answers delivered to them for comparison purposes. All material related to the lectures and practical sessions has been uploaded to the School website about two weeks before its start and all registered participants had an access to it in order to better prepare themselves in all sessions.

According to the questionnaires filled by the students at the end of the event, the scientific level of the lectures was comprehensive and interesting and the practical sessions were well connected to the lectures. Some students expressed



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a difficulty to follow the practical sessions and proposed to give more time to tackle the exercises in such a school organized in the future. Overall, it is considered as a very successful school fulfilling all its objectives. The program and pictures of the School can be seen at the web-site: <http://iuvsta-school2015.mie.uth.gr/>.



Participants in the School



Lecture session