



## Preface

The International Conference Functional Materials and Nanotechnologies (FM&NT-2017) was held for the second time in Tartu at the Dorpat Conference Centre on 24–27 April 2017. The conference was organized by the Estonian Physical Society together with the Institute of Physics, University of Tartu.

The FM&NT conference series has been running since 2006, initially organized for many years by scientists from the Institute of Solid State Physics (ISSP), University of Latvia. It is a yearly conference bringing together experts on different research fields from the whole world. Since 2013 the conference has been circulating between the three Baltic States organized by the University of Tartu, University of Latvia, and Vilnius University. The friendly and creative atmosphere of this scientific event encourages scientists from different research areas to attend meetings with the common name ‘Functional materials and nanotechnologies’. Through all these years young scientists have been looking for new knowledge and establishing contacts with experts from various fields at the FM&NT conferences. We were very pleased to offer support for PhD students attending the FM&NT-2017. We are really happy that

all Baltic States have been involved and are responsible for organizing the FM&NT conferences.

Tremendous efforts in all three Baltic States in the development of the RD&I system have resulted in significant investments into the research infrastructures and equipment. The contribution of national and international programmes to research and research staff has increased competitiveness of our countries. Therefore, site visits to our neighbours are purposeful in order to learn about new experiment possibilities and cooperation challenges in general. Excursions to the facilities of new *Physicum* and *Chemicum* complexes of the University of Tartu were extremely popular among the participants along with discussions on extending and developing new cooperation during the conference. Last but not least, the conference dinner was held at the premises of the newly opened Estonian National Museum at Raadi. Before the dinner an excursion to the museum was arranged, which gave the participants colourful information about Estonian and Finno-Ugric culture.

Along with traditional topics such as multifunctional materials, nanomaterials, materials for sustainable energy applications and theory, the focus of the conference was



on studies using modern experimental methods at large-scale facilities, novel optical materials (incl. LED materials), and recent achievements in fuel cell, photovoltaic, and graphene technologies. A dedicated talk was delivered on the activities of the European Teaming project ‘CAMART – boosting technology transfer’ implemented at the ISSP of Latvian University. Along with the scientific challenges innovation driven INTERREG projects ‘BALTIC TRAM’ and ‘GREEN POWER ENERGY’ presented their agenda how to implement research infrastructures and research competence of the universities to promote economic growth in the Baltic Sea region.

The number of delegates attending the conference was 170 from 21 countries. During the three days of the conference 16 invited and 34 oral contributions were delivered and 108 posters were presented. In the framework of the conference over 20 papers were submitted to a special issue of the *Proceedings of the Estonian Academy of Sciences*, a journal which belongs to the database of Web of Science.

All information about FM&NT-2017 is available at its homepage (<http://www.fmnt.ut.ee/>).

The Organizing Committee would like to thank all the speakers, contributors, session chairs, reviewers of submitted manuscripts, and other involved staff for their efforts in making the FM&NT-2017 successful.

Special thanks for the hard work made with the conference papers go to the Guest Editor Dr Arvo Kikas, who organized the reviewing of the manuscripts and

publication of the special issue by the Estonian Academy Publishers.

The Organizing Committee hopes that the conference gave participants a good insight into recent developments in nanotechnology, sustainable energetics, processing and modelling of multifunctional materials, and research conducted both with modern and more classical methods. We sincerely hope that the conference has resulted in diffusion of novel ideas and research concepts as well as brought together early stage and experienced scientists from different fields, leading to fruitful discussions. We hope that all participants had a good and memorable time in Tartu, a dynamical university town, which never rests.

We would like to acknowledge the financial support offered by Enterprise Estonia and Tartu University. Also the graduate school ‘Functional Materials and Technologies’, which is supported by the European Social Fund, has given a generous contribution for supporting our early stage researchers. We also would like to acknowledge and thank all the sponsors. We hope that continuation of the tradition introduced with this conference will strengthen international cooperation of scientists from the Baltic States with researchers of other countries all around the world.

On behalf of the Organizing Committee  
Ergo Nõmmiste  
Marco Kirm  
Toomas Plank

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