

Report from the 28-th Polychar World Forum on Advanced Materials in 2022

Polychar is an annual forum and only situation in the world due to COVID-19 prevented the organization of this event for two years. After two-year COVID-forced hiatus, the 28-th Polychar World Forum on Advanced Materials (Polychar 28), was held on July 4-7, 2022 in Yerevan, Armenia, during a hard period caused by the war in Ukraine. This was the first Forum held in the hybrid mode, in-person as well as long-distance.

Topics covered during the Forum included the following ones:

- Modeling, Predictive and Advanced Characterization Methods
- Smart and Functional Materials
- Synthesis and Chemical Modification
- Materials for Environment
- Materials for Medicine and Health
- Sustainability and Recycling
- Materials for Energy and Electronics
- Engineering and Manufacturing.

Our Polychar Forum is unique in many ways. Possibly the most important feature is that it offers opportunity to young students and researchers to present their scientific results to a wide public and exchange knowledge with prominent scientists from all over the world. Participants in the Monday Course on Materials Characterization declare that the Course makes easier following the research reports on Tuesday – Thursday. This time the following lectures were delivered in the Course:

Victor M. Castaño, Center for Advanced Physics and Applied Technology of the National Autonomous University of Mexico, Queretaro: Polymeric and composite materials for additive manufacturing

Masaru Matsuo, Nara Women's University: Electric fields discussed in terms of educational aspects

Mirosława El Fray, Western Pomerania University of Technology, Szczecin: Photothermal analysis of polymeric materials

Witold Brostow, University of North Texas, Denton: Viscoelastic properties of materials

Yuris Dzenis, Nebraska Center for Materials and Nanoscience, University of Nebraska-Lincoln: Processing characterization of continuous polymer nanofiber with simultaneously high strength and toughness

Liubov P. Myasnikova, Abram Ioffe Institute, St. Petersburg: Dry route to high performance UHMWPE film threads

Kevin Menard, Mary Kay Corporation, Addison, Texas: Dynamic mechanical analysis: Practical concerns with viscoelasticity

Tomasz Sterzynski, Poznan University of Technology: The macromolecular orientation in semicrystalline polymers: Structure and properties

In the Polychar Forum tradition, a number of prizes were awarded decided by votes of the Prize Committee (Liubov Myasnikova, Chair) at the conclusion of the event. The prestigious **Paul J. Flory Research Prize 2022** went to Juozas Grazulevicius (Kaunas

Technical University) for his work on organic molecular materials containing donor and acceptor moieties for electroluminescent applications. The Svante Arrhenius International Materials Research Prize was awarded to Yuri Dzenis (Nebraska Center for Materials and Nanoscience, University of Nebraska-Lincoln) for his exemplary research on processing and characterization of continuous polymer nanofibers with simultaneously high strength and toughness.

Two **Bruce Hartmann Prize for Young Scientists** were awarded to **Artem Borisov and Svetlana Gureva** of the Abram Ioffe Institute, St. Petersburg, for their work on structural phase transitions in n-alkanes. The **Jürgen Springer Prize for Young Scientists** was awarded to **Hasmik Khachatryan** (Scientific and Technological Center of Organic and Pharmaceutical Chemistry, Yerevan) for the presentation entitled “The modification of chitosan with 1-vinyl-4- formylpyrazolamines and thermal polymerization of obtained Schiff bases”.

The **Carl Klason Student Award** was given to Movses Aghekyan (Scientific and Technological Center of Organic and Pharmaceutical Chemistry, Yerevan State Medical University) for his work entitled “The vinylation of NH-pyrazoles with vinyl acetate in the presence of mercury(II) acetate on the chitosan based polymer carrier”.

All in person participants had a pleasant stay in Yerevan, a stylish city with old history and participated with pleasure in excursions around the city, to the Ararat Cognac Factory, to the Lake Sevan, to the Temple of Garni (77 AD) and to the Monastery of Geghard (13th century).