

BIMac 2026

XXIV. BRATISLAVA
INTERNATIONAL CONFERENCE
ON MACROMOLECULES



PROGRAM

April 13 - 17, 2026,
Štrbské Pleso, Slovakia

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**ORGANICKÁ
ANALÝZA
A SEPARAČNÉ
TECHNIKY**

**MIKROSKOPIA
A PRÍPRAVA
VZORIEK PRE
METALOGRAFIU**

**FYZIKÁLNE
A MATERIÁLOVÉ
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kvapalinová chromatografia spotrebný materiál pre metalografiu FTIR
hmotnostná spektrometria príprava metalografických vzoriek DVS
iónová chromatografia elektrónová mikroskopia analýza častíc
plynová chromatografia metalografia centrifúgy | koncentráto-
ry automatické dávkovanie leštičky reológia | extrúzia | nanočastice
príprava vzoriek | LIMS meranie tvrdosti | trhačky ICP-OES | XPS | UV-VIS
spotrebný materiál nanoindetory tyofilizátory | termostaty
GC-MS | HPLC | NMR analýza brúsky ICP-MS | analýza povrchov | XPS
LC-MS | GC-MS | HPLC | IRMS metalografia elektrochémia
TOC analýza | AOX/EOX | TN/TK/TS | CHNSO rezačky XRF
LC-MS | GC-MS | HPLC | IRMS TGA | DSC Raman a FTIR mikroskopia



XXIV. Bratislava International Conference on Macromolecules Conference on Polymers and Polymer (Nano)Composites

On behalf of the organizing committee, it is our great pleasure to welcome you to the XXIV. Bratislava International Conference on Macromolecules – BIMac 2026, organized by the Polymer Institute of the Slovak Academy of Sciences. This long-standing conference series, established in 1968, continues to provide an important international platform for discussing advances in polymer science and related disciplines.

The conference brings together researchers, students, and industry professionals to share their latest scientific results and exchange ideas in key areas of polymer science, including the synthesis and characterization of polymers, composite polymeric materials, polymeric biomaterials, and molecular simulations of polymers. These diverse topics reflect the dynamic, interdisciplinary nature of modern macromolecular research and its growing relevance to both fundamental science and practical applications.

This conference is also dedicated to our former colleague, Dr. Mária Omastová, in recognition of her distinguished career, significant contributions to polymer science, and continuous inspiration and support for colleagues and young scientists.

Beyond the scientific program, we believe that conferences are also about people—about the conversations that continue after presentations, the new collaborations that arise during poster discussions, and the friendships that begin over coffee breaks or social events. We sincerely hope this meeting will create a stimulating environment where new ideas emerge and lasting professional partnerships form.

This year's conference takes place in the beautiful surroundings of the High Tatras, providing a unique opportunity to combine scientific exchange with moments of relaxation and inspiration in nature.

April 13 – 17, 2026
High Tatras, Slovakia



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Surrounded by mountains and the fresh alpine air, we encourage you not only to actively engage in the scientific sessions but also to enjoy the region's natural beauty, the hospitality and wellness facilities at the conference venue, and the informal social activities prepared for participants.

We hope that BIMac 2026 will be an inspiring and memorable event for all participants—scientifically rewarding, intellectually stimulating, and personally enriching. May this meeting strengthen our scientific community and open the door to new collaborations and friendships.

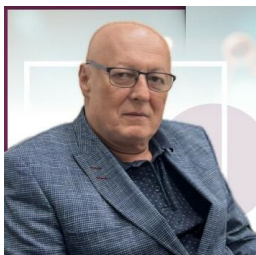
We wish you a productive conference, stimulating discussions, and an enjoyable stay in the High Tatras.

On behalf of the Organizing Committee

Dr. Zdenko Špitálsky
Chair of BIMac 2026

April 13 – 17, 2026
High Tatras, Slovakia

Plenary Speakers



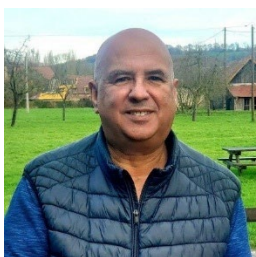
Dr. Igor Krupa

Polymers in water purification technologies



Prof. Jose R. Leiza

Towards sustainable biobased waterborne adhesives and coatings



Dr. Mohamed M. Chehimi

Aryl diazonium salts in polymer surface science and engineering



Prof. Dr. Peter Wick

Innovating advanced materials for health: balancing safety and performance



XXIV. Bratislava International Conference on Macromolecules
Conference on Polymers and Polymer (Nano)Composites

Day 1

Monday

13th April 2026

9⁰⁰ – 16⁰⁰ Attendees Arrival

16⁰⁰ – 19⁰⁰ Registration of Participants

19⁰⁰ – 20⁰⁰ Welcome Dinner

Serving Locations

WELCOME DINNER – VATRA Club (Hotel Patria)

LUNCH / DINNER – Restaurant SLNKO (Hotel Patria)

POSTER SESSION – VATRA Club (Hotel Patria)

SOCIAL EVENING – KOLIBA restaurant

Denotation:

PL – plenary lecture

IL – invited lecture

CL – contributed lecture

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High Tatras, Slovakia



Day 2

Tuesday

14th April 2026

9⁰⁰-9³⁰ **PL-1 Dr. Mohamed M. Chehimi**
Aryl diazonium salts in polymer surface science and engineering

9³⁰-9⁵⁵ **IL-1 Martin Danko**
*Covalent adaptable networks based on polyesters;
example of Tulipalin A and ϵ -caprolacton copolymer cross-linked with
alkylated thioether*

9⁵⁵-10¹⁵ **CL-1 Mária Gurská**
*From furan monomers to sustainable (co)polymers via controlled radical
polymerization*

10¹⁵-10³⁵ **CL-2 Sambit Kumar Lenka**
*Synthesis of novel functional polyamides using renewable itaconic esters
and diamines*

10³⁵-11⁰⁵ **Coffee break**

11⁰⁵-11²⁵ **CL-3 Pavel Šimon**
Emissive polyimides: preparation, characterization and application

11²⁵-11⁴⁵ **CL-4 Helena Švajdlenkova**
Dimethacrylate microstructure: role of composition and preparation

11⁴⁵-12⁰⁵ **CL-5 Jozef Kollár**
*Multicomponent reactions: a versatile platform for the preparation of
functional polymers*

12⁰⁵-13⁰⁵ **Lunch**

13⁰⁵-13³⁵ **PL-2 Dr. Igor Krupa**
Polymers in water purification technologies

13³⁵-13⁵⁵ **CL-6 Karina Dragašiute**
*Design and characterization of MXene-based conductive nanopapers for
multifunctional composite interlayers*



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Day 2

Tuesday

14th April 2026

CL-7 Gabriele Jovarauskite

13⁵⁵-14¹⁵ *Advanced nanocoatings for structural health monitoring of wind turbine blade leading edges*

CL-8 Miroslav Mrlik

14¹⁵-14³⁵ *Mechano ATRP of glycidyl methacrylate-effect of air on the polymerization kinetics*

14³⁵-15⁰⁵ Coffee break

IL-2 Ines Kuehnert

15⁰⁵-15³⁰ *Morphology formation during injection molding of semi-crystalline thermoplastics*

CL-9 Kashif Ullah Khan

15³⁰-15⁵⁰ *Synergistic evaluation of moisture content in petroleum-based polyester MWCNT recycled nanocomposite*

CL-10 Erika Varga

15⁵⁰-16¹⁰ *Microstructural evolution in mica-reinforced PA11 composites*

CL-11 Peter Machata

16¹⁰-16³⁰ *MXene-water interactions: wettability and stability of $Ti_3C_2T_x$*

CL-12 Anastasiia Stepura

16³⁰-16⁵⁰ *Preparation of 2D MXenes, study of their properties and application in polymeric nanocomposites*

IL-3 Dušan Kovačik

16⁵⁰-17¹⁵ *Plasma functionalization for enhanced interfacial adhesion in high-performance FRP composites*

18⁰⁰ Dinner

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Day 3

Wednesday

15th April 2026

PL-3 Prof. Dr. Peter Wick

9⁰⁰-9³⁰ *Innovating advanced materials for health: balancing safety and performance*

IL-4 Adriana Kovalcik

9³⁰-9⁵⁵ *Hybrid bio-based materials as functional platforms for next-generation scaffolds*

IL-5 Juraj Kronek

9⁵⁵-10²⁰ *Novel hybrid materials based on organo-modified montmorillonites for decontamination of hazardous molecules*

10²⁰-10⁵⁰ Coffee break

IL-6 Dr. Jiří Pflieger

10⁵⁰-11¹⁵ *Polymers mimicking functionality of neuronal synapses*

CL-13 Hester Oosthuizen

11¹⁵-11³⁵ *Development of a multifunctional calcium-based polymer composite for ligament and bone healing applications*

IL-7 Dr. Matej Mičušík

11³⁵-12⁰⁰ *Preparation of biodegradable polylactic acid/polyhydroxybutyrate blends and modified bioglass composites*

12⁰⁰-13⁰⁰ Lunch

13⁰⁰-17⁰⁰ *Trip to High Tatras*

17⁰⁰-19⁰⁰ **Poster Session**
(this session is combined with a bowling game)

18⁰⁰ Dinner

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List of Posters

- P-1 **Zuzana Frances Šimonová.**
High transparent fluorinated polyimides for space application
- P-2 **Tereza Mlynkova.**
Valorization of spent coffee grounds as a bio-based nucleating agent for polypropylene
- P-3 **Orsolya Bystricky-Berezvai.**
*Integrated biorefinery of African catfish (*Clarias Gariepinus*) by-products: multi-product valorization and life cycle assessment*
- P-4 **Lucie Matošková.**
Chitosan-based packaging with bioactive compounds
- P-5 **Amal Thattaruparambil Rajeev.**
Mechanical properties of new biodegradable polymer composites with bioglass
- P-6 **Zdeno Špitalský.**
Synthetic polymer materials as replacement for human organs in a neonatal simulator
- P-7 **Eva Špitalská.**
Differential photodynamic effects of hydrophilic and hydrophobic carbon quantum dots against RICKETTSIA SLOVACA strain 13-B
- P-8 **Wojciech Grodzki. Marek Jałbrzykowski. Zbigniew Oksiuta.**
Mechanical properties of organic filler PLA-based composites
- P-9 **Benji Mojzes.**
The effect of multiple mechanical recycling steps on fiber length distribution in relation to mechanical properties for natural fiber reinforced PLA
- P-10 **Ivana Šišoláková.**
Carbon paste electrode for selective electrochemical determination of insulin under interference conditions
- P-11 **Michal Malcek.**
From 2D surfaces to finite size quantum dots: computational study of graphene-, borophene-, and silicene-based materials



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- Miriama Malček Šimunková.**
P-12 *PA6/gC₃N₄ nanofibres composite for ROS generation in advance oxidation processes*
- Sahila Gahramanli.**
P-13 *Surface functionalization of polymers by non-thermal plasma: from synthetic polymers to natural macromolecules found in the seed coat*
- Igor Novák.**
P-14 *Study of adhesives based on metallocene copolymers*
- Zuzana Nógellová.**
P-15 *The effect of multiple mechanical recycling steps on fibre length distribution in relation to mechanical properties for natural fiber reinforced PLA*
- Oľga Fričová, Natália Šmídová.**
P-16 *The use of basic solid-state NMR techniques in the study of TPS and PBAT compatibility in their blends*
- Pilar Tiemblo Ana López Cudero.**
P-17 *Institute Of Polymer Science and Technology (ICTP-CSIC)*
- Tobias Hartmann.**
P-18 *Processing challenges in physical foam injection moulding of PLA-natural fibre composites*
- Aneesha Senthil Kumar.**
P-19 *PVA/PVP/Ploxamer hydrogel synthesis, with incorporated MoO_x nanoparticles: retention and morphological studies*



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Day 4

Thursday

16th April 2026

9⁰⁰-9³⁰ **PL-4 Prof. Jose R. Leiza**
Towards sustainable biobased waterborne adhesives and coatings

9³⁰-9⁵⁰ **CL-14 Erik Schöne**
Processing of PLA and PLA/bioactive glass-composites in the medical context

9⁵⁰-10¹⁰ **CL-15 Natalia Kubiak**
From waste to durable materials – modified natural fillers in environmentally resistant biocomposites

10¹⁰-10³⁰ **CL-16 Julia Głowacka**
A sustainable approach to manufacturing 3D-printed composite molds from PLA with natural fibers

10³⁰-10⁵⁰ **CL-17 Michaela Sedničková**
Properties of thermoplastic starch modified with lignin

10⁵⁰-11²⁰ **Coffee break**

11²⁰-11⁴⁵ **IL-8 Dr. László Lendvai**
Predictive characterization of recycled PLA via rheological, molecular, and mechanical indicators

11⁴⁵-12⁰⁵ **CL-18 Krzysztof Nowak**
Design of a metal-polymer interface for adhesive bonding between steel sheets and thermoplastic materials

12⁰⁵-13⁰⁵ **Lunch**

13⁰⁵-13³⁰ **IL-9 Dr. Robert E. Przekop**
Multifunctional organosilicone modifiers – unlocking the materials tomorrow

13³⁰-13⁵⁰ **CL-19 Ivan Chodák**
Detailed characterization of thermoplastic starch for optimal performance in biodegradable mixtures with other plastics

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Day 4

Thursday

16th April 2026

CL-20 Hamed Peidayesh

13⁵⁰-14¹⁰ *Tailoring the mechanical performance of thermoplastic starch/PBAT blends via a novel compatibilizer*

CL-21 Anna Vykydalová

14¹⁰-14³⁰ *Study on the effect of hydrolysis on biocomposites with PLA matrix*

14³⁰-15⁰⁰ **Coffee break**

IL-10 Dušan Račko

15⁰⁰-15²⁵ *Molecular dynamics simulations of knotted, catenated and supercoiled DNA molecules for ai enhanced topology recognition*

CL-22 Ferenc Palasti

15²⁵-15⁴⁵ *Challenges in parameter determination for molecular dynamics simulations*

CL-23 Gomaa Farouk Elfawal

15⁴⁵-16⁰⁵ *In vitro studies of electrospun polycaprolactone/cellulose acetate containing gallic acid/cinnamic acid for biomedical application (antibacterial and anticancer)*

CL-24 Magdalena Kustos

16⁰⁵-16²⁵ *Sustainable PLA composites reinforced with agricultural waste for FDM 3D printing*

CL-25 Smaher Mosad Saad Elbayomi

16²⁵-16⁴⁵ *BER-loaded CS-ZIF-8@polydimethylsiloxane porous sponges for antibacterial and tissue engineering applications*

CI-26 Gamal Zain

16⁴⁵-17⁰⁵ *Dye removal and antibacterial performance of novel biobased nanofibers from poly(Tulipalin A)*

19⁰⁰ **Social Evening (Dinner in KOLIBA with folk music)**



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Day 5

Friday

17th April 2026

9³⁰-9³⁵ **IL-11 Ognen Pop-Georgievski**
Observing the structure of non-fouling brushes

9⁵⁵-10¹⁵ **CL-27 Maria Kováčová**
From nanomaterial to functional coatings: hydrophobic carbon quantum dots with photodynamic antimicrobial activity

10¹⁵-10³⁵ **CL-28 Randa Ghonim**
Advanced materials and design strategies for high-performance PEM fuel cells

10³⁵-11⁰⁵ **Coffee break**

11⁰⁵-11²⁵ **CL-29 Zuzana Kroneková**
Poly(2-isopropenyl-2-oxazoline) as drug delivery platform

11²⁵-11⁵⁰ **IL-12 Zdeno Špitalský**
From concept to creation: the evolution of 3D printing at PISAS

11⁵⁰-12⁰⁵ **CLOSING CEREMONY**

12⁰⁵-13⁰⁵ **Lunch**

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