



ESOR
P A D O V A • 2 0 2 5

Conference Book

**20th EUROPEAN SYMPOSIUM
ON ORGANIC REACTIVITY
9-12 SEPTEMBER 2025**

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BEILSTEIN JOURNAL OF ORGANIC CHEMISTRY



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Welcome to ESOR2025

On behalf of the organising committee, we are delighted to welcome you to the 20th edition of the European Symposium on Organic Reactivity (ESOR2025), which will be held from 9-12 September 2025 at the 'S. Gaetano' Cultural Centre in Padova.

The ESOR series is a long-standing biennial European conference series that began in Paris in 1987 and has since been organized in 14 different countries. The main objective of the ESOR-series is to bring together researchers active in the field of physical organic chemistry, particularly with regard to organic reactivity.

We wish you a wonderful stay in Padova and hope that the conference will be a source of inspiration and enthusiasm, lead to a fruitful exchange of ideas and discussions, strengthen existing ties and create new ones.

Leonard Prins

Fabrizio Mancin

Organizing Committee

Fabrizio Mancin | *Chair*

Leonard Prins | *Chair*

Luca Gabrielli | *Conference secretary*

Mauro Carraro

Enzo Menna

Federico Rastrelli

Andrea Sartorel

Support Team

Vijay Banakar

Eugenia Barbato

Martina Chirico

Michele Do Nascimento Tomaz

Matteo Forner

Lorenzo Goldin

Fei Guo

Maohua Lin

Claudia Longo

Catia Nicoletti

Qing Zhang

International Standing Committee

Rainer Herges | *Chair*, University of Kiel, Germany

F. Matthias Bickelhaupt | Vrije Universiteit Amsterdam, Netherlands

Moisés Canle López | University of A Coruña, Spain

Maria de Lurdes dos Santos Cristiano | University of Algarve, Portugal

Koop Lammertsma | Vrije Universiteit Amsterdam, Netherlands

AnnMarie O'Donoghue | University of Durham, United Kingdom

Leonard Prins | University of Padova, Italy

Hans-Ullrich Siehl | University of Ulm, Germany

Amnon Stanger | Technion, Haifa, Israel

Hrvoj Vančik | University of Zagreb, Croatia

Einar Uggerud | University of Oslo, Norway

ESOR History

1987	Paris, France
1989	Padova, Italy <i>presse-papier dedicated to 'ESOR II'</i>
	
1991	Göteborg, Sweden
1993	Newcastle, UK
1995	Santiago de Compostela, Spain
1997	Louvain-la-Neuve, Belgium
1999	Ulm, Germany
2001	Dubrovnik, Croatia
2003	Oslo, Norway
2005	Rome, Italy
2007	Faro, Portugal
2009	Haifa, Israel
2011	Tartu, Estonia
2013	Pragua, Czech Republic
2015	Kiel, Germany
2017	Durham, UK
2019	Dubrovnik, Croatia
2021	on-line conference
2023	Amsterdam, Netherlands



Scientific Program

The scientific program includes:

- 1** Opening Lecture (**OL**)
- 7** Keynote Lectures (**KL**)
- 14** Invited Lectures (**IL**)
- 28** Oral Communications (**OC**)
- 6** Flash Communications (**FC**)
- 90** Poster Presentations (**P**)

Program



Abstracts



Password: !!ESOR2025!!

Scientific Program

Tuesday 9 September

08:00 - 09:30		Registration
09:30 - 09:45		Welcome & Opening Leonard Prins Chair ESOR2025 Stefano Mammi Head of the Department of Chemical Sciences Rainer Herges Chair of the ESOR Standing Committee
09:45 - 10:45	OL	<i>Chair: Leonard Prins</i> E.W. 'Bert' Meijer <i>Supramolecular Reactivity in the Non-Covalent Synthesis of Functional Systems and Materials</i>
10:45 - 11:20		Coffee Break <i>Chair: Moisés Canle López</i>
11:20 - 12:00	KL1	Joseph Moran <i>Electric Fields and the Metabolic Origin of Life</i>
12:00 - 12:15	OC1	Quentin Duez <i>Tracking Propagating Perturbations in Chemical Reactions</i>
12:15 - 12:30	OC2	Holger F. Bettinger <i>Structure-Reactivity Relationships in the Dihydroazaborinine Molecular Solar Thermal System</i>
12:30 - 13:00	IL1	Annette Taylor <i>Programmable release in compartmentalized enzyme systems: insights from kinetic modelling</i>
13:00 - 14:30		Lunch <i>Chair: F. Matthias Bickelhaupt</i>

14:30 - 15:10	KL2	Peter R. Schreiner <i>Rethinking the Role of Quantum Mechanical Tunneling</i>
15:10 - 15:25	OC3	Philippe Lainé <i>Electron Chemistry</i>
15:25 - 15:40	OC4	Bernard Flynn <i>Counterintuitive Steric Activation in the Electrocyclization of Highly Substituted π-Cations</i>
15:40 - 16:10	IL2	Guanqi Qiu <i>What can we learn from and do to kinetic-thermodynamic responsiveness?</i>
16:10 - 16:50	Coffee Break	
<i>Chair: Federico Rastrelli</i>		
16:50 - 17:20	IL3	Charles Diesendruck <i>Breaking Covalent Bonds with Mechanical Force</i>
17:20 - 17:35	OC5	Hrvoj Vančik <i>Organic reaction mechanisms and fractals</i>
17:35 - 17:53	FC1-6	Flash Communications (3 minutes each)
17:53 - 18:00	Conference Photo	
18:00 - 20:30	Poster Session & Welcome Mixer	

Wednesday 10 September

<i>Chair: Ulrich Siehl</i>		
09:00 - 09:40	KL3	Matthias Bickelhaupt <i>Paradigm Shifts in Chemical Theory</i>
09:40 - 09:55	OC6	Ricardo Matute <i>Screening and activation of a full hidden intermediate on the PES of E1cB/E2 borderline eliminations and of the Schmittelcyclization of enyne–allenes</i>

09:55 - 10:10	OC7	Lucas de Azevedo Santos <i>The quantum chemical nature of hydrogen bonds demystifies misconceptions</i>
10:10 - 10:40	IL4	Miquel Solà i Puig <i>Double 2D- and 3D-aromaticity in triplet tropylium trication, oxidized closo icosahedral dodecaiodo-dodecaborate cluster, and periodo-polycyclic aromatic hydrocarbons</i>
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10:40 - 11:20	Coffee Break	
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		<i>Chair: Amnon Stanger</i>
11:20 - 11:50	IL5	Renana Gershoni Poranne <i>Old Ideas, New Tricks: Additivity in Polycyclic Aromatic Systems</i>
11:50 - 12:05	OC8	Henrik Ottosson <i>Why do some heteroaromatics have n, π^* states as their first excited states, while others have π, π^* states as these?</i>
12:05 - 12:20	OC9	Bartłomiej Pigulski <i>Synthesis of azulene-embedded PAHs via Scholl oxidation</i>
12:20 - 12:35	OC10	Artur Mardyukov <i>On-Surface and Matrix-Isolation Strategies for Accessing Elusive Phosphorus–Nitrogen Species</i>
12:35 - 13:05	IL6	Marcin Stępień <i>Electron-Deficient Aromatics Multiredox Systems, Near-Infrared Dyes, & Brønsted Acids</i>
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13:05 - 14:30	Lunch	
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		<i>Chair: Hrvoj Vancik</i>
14:30 - 15:10	KL4	Wilhelm T. S. Huck <i>Information processing in chemical reaction networks</i>

15:10 - 15:25	OC11	Yannick Geiger <i>Dissolved or assembled reactants? The case of the Formose reaction</i>
15:25 - 15:40	OC12	Filip Szczypinski <i>Autonomous mobile robots for exploratory synthetic chemistry</i>
15:40 - 16:10	IL7	Giulio Ragazzon <i>Enabling endergonic processes through catalysis</i>
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16:10 - 16:50	Coffee Break	
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		<i>Chair: Mauro Carraro</i>
16:50 - 17:20	IL8	Sami Lakhdar <i>Mechanistically Guided Strategies for the Design and Synthesis of Organophosphorus Compounds</i>
17:20 - 17:35	OC13	AnnMarie O'Donoghue <i>Kinetics-guided aqueous synthesis of phosphoramidates and thiophosphoramidates from P(V) dichloridates</i>
17:35 - 17:50	OC14	Borislav Kovačević <i>Bis(Phosphazanyl Phosphines) as Potential Metal-Free Catalysts for CO₂ Reduction</i>
17:50 - 18:05	OC15	Moisés Canle López <i>Heterogeneous photocatalysis in continuous flow systems</i>
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19:30 - 21:30	International Board Meeting	
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Thursday 11 September

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		<i>Chair: Fabrizio Mancin</i>
09:00 - 09:40	KL5	Annemieke Madder <i>Singlet Oxygen as a Tool for Biomolecular Ligations</i>

09:40 - 09:55	OC16	Eddie Myers <i>Cysteine Thioaldehydes – Generation and Reactivity</i>
09:55 - 10:10	OC17	Francesco Sansone <i>Anionic calixarenes oppose α-synuclein oligomers and their toxicity effects in a Parkinson's disease model</i>
10:10 - 10:25	OC18	Nick Williams <i>Artificial Supramolecular Signal Transduction Systems</i>
10:25 - 10:40	OC19	Roy Shenhar <i>Toward bimetallic nanowires: Insights from the co-impregnation of block copolymer films</i>
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10:40 - 11:20	Coffee Break	
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		<i>Chair: AnnMarie O'Donoghue</i>
11:20 - 11:50	IL9	Armin R. Ofial <i>Reactivity Scales as Tools for Analyzing Polar Organic Reactions: Dos and Don'ts</i>
11:50 - 12:05	OC20	Robert Mayer <i>Predicting Reactivity and Catalysis in Water Based on High-Throughput Kinetic Experimentation</i>
12:05 - 12:20	OC21	Jason Harper <i>Quantifying solvent effects in mixtures containing ionic liquids</i>
12:20 - 12:35	OC22	Einar Uggerud <i>Hydrogen Transfer Mechanisms in the Anthraquinone Process</i>
12:35 - 13:05	IL10	Manuel Orlandi <i>New Trends in Enantioselective Cu-Catalyzed Sequential Transformations</i>
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13:05 - 14:30	Lunch	
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		<i>Chair: Maria de Lurdes Cristiano</i>
14:30 - 15:10	KL6	Joost N.H. Reek <i>Self-assembled molecular cages for transition metal catalysis and applications in living cells</i>
15:10 - 15:25	OC23	Giorgio Capocasa <i>The Dynamic Chemistry of the $\equiv B^- \rightarrow N \equiv$ Bond</i>
15:25 - 15:40	OC24	Rainer Herges <i>Light-Controlled Magnetic Levitation</i>
15:40 - 16:10	IL11	Jiří Kaleta <i>Surface-Mounted Molecular Devices</i>
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16:10 - 16:30	Coffee Break	
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16:30	Social program (see booklet)	
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20:00	Conference dinner (see booklet)	
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Friday 12 September

		<i>Chair: Andrea Sartorel</i>
09:00 - 09:40	KL7	Marcella Bonchio <i>Hybrid Organic-Inorganic Interfaces for Supramolecular Photosynthesis: The Quantasome Vision</i>
09:40 - 09:55	OC25	Alexandra Tsybizova <i>Tautomerism and Conformational Effects in Protonated and Copper(I)-Coordinated Bis(oxazoline) Ligands: Insights from Spectroscopy and DFT</i>
09:55 - 10:10	OC26	Piotr Zabierowski <i>Crystallizing the Transient: Phthalaldehyde-Based Species as a Gateway to Functional Hybrid Materials</i>

10:10 - 10:40	IL12	Carolina Gimbert Suriñach <i>Light-driven reactions assisted by organic molecules or materials</i>
10:40 - 11:20	Coffee Break <i>Chair: Leonard Prins</i>	
11:20 - 11:50	IL13	Irena G. Stará <i>Helical Frameworks as Catalytic Platforms: Controlling Reactivity Through Molecular Geometry</i>
11:50 - 12:05	OC27	Victor Chechik <i>Quantitative detection of free radical intermediates in organic reactions</i>
12:05 - 12:20	OC28	Etienne Derat <i>Understanding selectivities in radical reaction: the case of Truce-Smiles rearrangement</i>
12:20 - 12:50	IL14	Massimo Bietti <i>Chemoselective C(sp³)-H bond oxygenations guided by solvent induced polarity enhancement</i>
12:50 - 13:00	Poster Prize Award Ceremony	
13:00 - 13:15	Closure	
13:15 - 14:00	Lunch (suitable for take-away)	

Poster Prizes

Poster prizes are generously provided by Beilstein (3x), Cell Press, ChemistryEurope (2x) and Organic & Biomolecular Chemistry.

Poster prizes will be assigned based on an evaluation by:

1. a jury composed of senior ESOR2025-participants
2. yourself, using the voting ballot received during registration. Ballots can be cast till the afternoon of Thursday 11 September by depositing the ballot in the dedicated box.

Conference Venue

ESOR2025 will take place in Centro Culturale ‘San Gaetano’ located in the city center of Padova



Internet access

Free WI-FI access is available at the premises Centro Culturale ‘S. Gaetano’. The name of the Wi-Fi network to connect to is ‘PADOVAweb’. Registration is not necessary. Nonetheless, participants from Europe are invited to use their personal data bundle to avoid an overload of the WI-FI network.

Internet connection (both WIFI and cellular) is poor in the conference room.

Social Event

On Thursday afternoon (11 September) guided visits to two historical locations of the University of Padova are scheduled. Because of the limited number of visitors per tour (30), (free) reservation is mandatory. Each participant can attend only one tour. **Meeting points for each tour are indicated in the Doodle.**

Palazzo Bo

As one of the oldest and most picturesque buildings in Padova, Palazzo Bo has long stood as the heart of the University of Padova. Lined with coats of arms embedded within its walls, the 16th century Ancient Courtyard gives way to the majestic Aula Magna and the renowned Anatomical Theatre, which is known as the oldest permanent anatomical theatre in the world (1595).

Orto Botanico di Padova

A UNESCO World Heritage Site. Founded in 1545, this is the world's oldest academic botanical garden still in its original location. It's a beautiful and tranquil place to walk and admire historic medicinal plants, ancient trees, and the stunning new Biodiversity Garden.

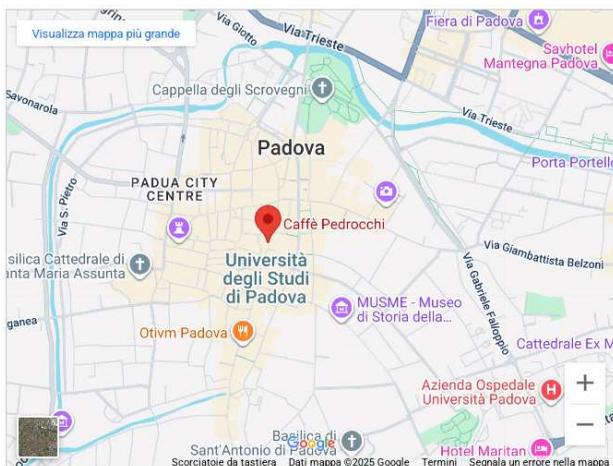
Reserve your slot (**mandatory !**)



Conference Dinner

The conference dinner – for registered participants only – will take place on Thursday evening (11 September) at 20:00 at **Caffè Pedrocchi**. Known as the "café without doors," this 19th-century neoclassical icon was a famous meeting place for intellectuals, students, and politicians.

- **Time & Date:** 20:00, Thursday 11 September
- **Address:** Via VIII Febbraio, 15, 35122 Padova
- **Website:** www.caffepedrocchi.it
- **Map:**



Welcome to Padova!

A Walker's Guide to the City's Treasures

While you are in Padova, take a moment to discover the art and history that make this city a true Italian gem. The fresco cycles in building complexes within Padova's historic center illustrate how different artists, starting with Giotto, introduced important stylistic developments in the history of art over the course of the 14th century. For this reason, the World Heritage Committee has recently inscribed *Padova Urbs Picta* on the World Heritage List, acknowledging its Outstanding Universal Value.

All the major sights are concentrated in the historic center, making it perfect for exploration on foot during your spare time.

Your Starting Point: Caffè Pedrocchi

Known as the "café without doors," this 19th-century neoclassical icon was a famous meeting place for intellectuals, students, and politicians. Its historic rooms are a museum in themselves. It's the perfect spot to grab an espresso and plan your short tour.

- **Address:** Via VIII Febbraio, 15, 35122 Padova
- **Website:** www.caffepedrocchi.it

The Heart of the City (5-10 minute walk)

Just a few steps from Caffè Pedrocchi, you'll find the vibrant core of medieval and Renaissance Padova.

1. *Palazzo della Ragione & The Old Market*

This magnificent medieval town hall boasts one of the largest unsupported roofs in Europe. The grand upper hall, the Salone, is adorned with an astrological fresco cycle. Below, the 800-year-old Sottosalone market is a feast for the senses with local cheeses, meats, and delicacies.

- **Pro-Tip:** Don't just admire the outside; the sheer scale of the *Salone* inside is breathtaking.
- **Address:** Piazza delle Erbe, 35122 Padova
- **Website:** www.palazzodellaragionepadova.it

2. *University of Padova - Palazzo Bo*

Founded in 1222, this is one of the world's oldest universities. It was here that Galileo Galilei taught. A guided tour allows you to visit the world's first permanent Anatomical Theatre (1595), a striking and historically significant sight.

- **Pro-Tip:** A tour is essential to see the key historic rooms. Check the schedule in advance.
- **Address:** Via VIII Febbraio, 2, 35122 Padova
- **Website:** www.unipd.it/en/palazzo-bo-anatomical-theatre

3. *Baptistery of the Cathedral (Battistero del Duomo)*

While the Cathedral (Duomo) is modest, its adjacent Baptistery is a hidden masterpiece. It houses a stunning, complete fresco cycle by Giusto de' Menabuoi (1375-1378), a vibrant and captivating depiction of the Bible.

- **Pro-Tip:** It is far less crowded than the Scrovegni Chapel but considered by many to be just as beautiful. A perfect choice if you have limited time.
- **Address:** Piazza Duomo, 35122 Padova
- **Website:** www.battisteropadova.it

The Unmissable Masterpiece (10-15 minute walk)

A short walk north from the center takes you to Padova's most famous attraction.

4. Scrovegni Chapel (Cappella degli Scrovegni)

A UNESCO World Heritage Site. This is an absolute must-see. Giotto's fresco cycle (1303-1305) is a pivotal moment in the history of Western art, marking a departure from Byzantine styles towards a new, more humanistic naturalism. The emotional depth and narrative power of the scenes are unforgettable.

- **CRITICAL INFORMATION: Booking is mandatory** and must be done online, well in advance. Please check the website immediately for any last-minute availability. Your ticket also grants access to the adjacent Eremitani Museums.
- **Address:** Piazza Eremitani, 8, 35121 Padova
- **Website for mandatory booking:**
www.cappelladegliscrovegni.it

Pilgrimage & Serenity (15-20 minute walk)

Head south from the center for a trio of magnificent and peaceful sites located close to one another.

5. Basilica of Saint Anthony (Basilica di Sant'Antonio)

Known to the Padovans simply as *Il Santo*, this is one of the most important pilgrimage sites in the Christian world. It holds the tomb and relics of Saint Anthony. The basilica is a monumental complex of different architectural styles, with incredible art inside, including bronze sculptures by Donatello.

- **Note:** As a place of worship, a respectful dress code (covered shoulders and knees) is enforced.
- **Address:** Piazza del Santo, 11, 35123 Padova
- **Website:** www.santantonio.org

6. *Orto Botanico di Padova (Botanical Garden)*

A UNESCO World Heritage Site. Founded in 1545, this is the world's oldest academic botanical garden still in its original location. It's a beautiful and

tranquil place to walk and admire historic medicinal plants, ancient trees, and the stunning new Biodiversity Garden.

- **Address:** Via Orto Botanico, 15, 35123 Padova
- **Website:** www.ortobotanicopd.it

7. *Prato della Valle*

One of the largest squares in Europe, *Prato della Valle* is a landmark of impressive scale and beauty. Its grassy central island is surrounded by a canal lined with 78 statues of famous figures connected to the city. It's the perfect place for a relaxing evening stroll.

A Final Tip: The Spritz Ritual

You are in the home of the Spritz! Before dinner, do as the locals do and find a bar in one of the central squares (*Piazza delle Erbe*, *Piazza della Frutta*, or *Piazza dei Signori*) for an *aperitivo*. Ordering a Spritz is the classic choice.

Enjoy your stay and your exploration of historic Padova!