



20TH INTERNATIONAL SYMPOSIUM ON

FLAVINS & FLAVOPROTEINS



September 5-9, 2021
Graz University of Technology
Graz, Austria



Conference Program

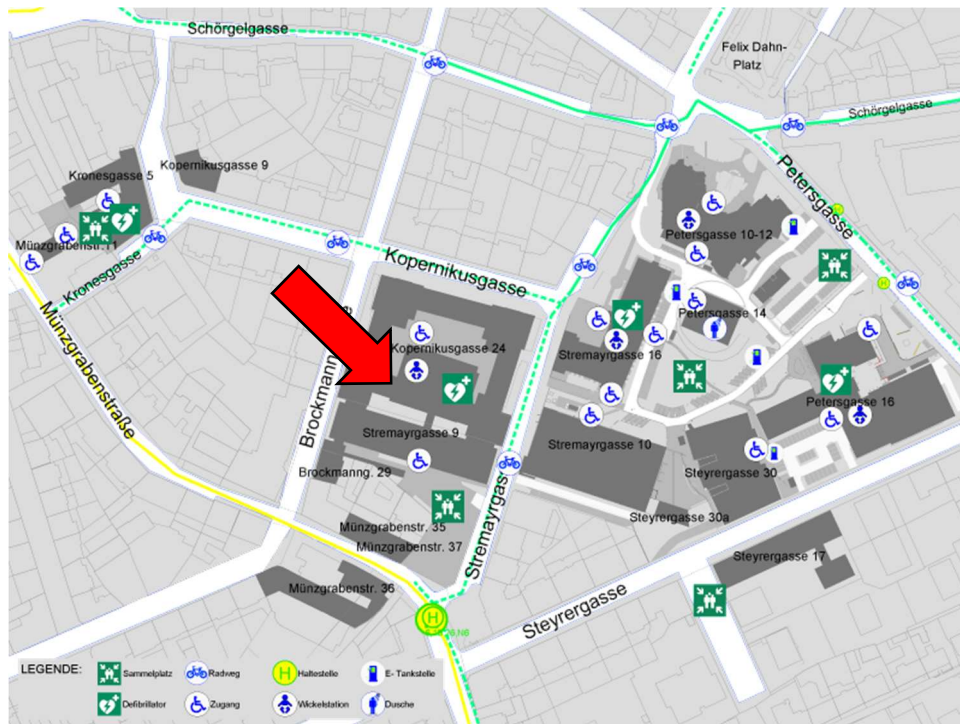


Location

September 5-9, 2021

Registration, Opening, Lectures

The Conference will be held at **Graz University of Technology**,
Lecture Hall H “Ulrich Santner”, ground floor
Kopernikusgasse 24, 8010 Graz, Austria



Poster Presentation

Stremayrgasse 16, ground floor



September 9, 2021 Conference Dinner

University of Graz, Universitätsplatz 3, 1st floor



AULA

Green square
building in the
center



Program

Sunday, September 5, 2021

14:00 Registration

16:00 Opening
Peter Macheroux (Graz University of Technology)

Opening Lecture

16:15-17:00 IL 1 **Anne-Frances Miller** (University of Kentucky) *ONSITE*
*Magnificent magnets meet faboulous flavins,
and the rest is history*

Session 1: New flavins and flavoproteins

Chair: **Bruce Palfey** (University of Michigan)

17:00-17:30 IL2 **Gerald Lackner** (Leibniz Institute for *ONSITE*
Natural roduct Research and Infection Biology)
*The discovery, biosynthesis, and biotechnological use of
the deazaflavin coenzyme 3PG-F₄₂₀*

17:30-18:00 IL3 **Pablo Sobrado** (Virginia Tech) *ONLINE*
*Role of reduced flavin in non-redox
dehalogenation reactions*

18:00-18:30 IL4 **David Leys** (University of Manchester) *ONLINE*
*Variations on a prenylated flavin theme, an update on
prFMN biochemistry and application*

18:30-22:00 **Welcome Reception:** Drinks & Snacks

Monday, September 6, 2021

08:55-09:00 Opening & Announcements

Session 2: Photobiocatalysis by flavoenzymes

Chair: **Wolfgang Kroutil** (University of Graz)

09:00-09:30 IL5 **Frank Hollmann** (Delft University of Technology) *ONSITE*
Photoenzymatic decarboxylation reactions – scope and (current) limitations

09:30-10:00 IL6 **Todd Hyster** (Cornell University) *ONLINE*
Photoenzymatic catalysis – using light to reveal new enzyme functions

10:00-10:30 IL7 **Theodore Goodson** (University of Michigan) *ONLINE*
Quantum light for sensing of flavin molecules

10:30-11:00 Coffee/tea break

Session 3: Flavin-dependent photoreceptors

Chair: **Andreas Winkler** (Graz University of Technology)

11:00-11:30 IL8 **Kevin Gardner** (City College of New York) *ONSITE*
Exploring biomolecular dynamics in ligand-regulated protein/protein interactions: Understanding how nature's switches work

11:30-12:00 IL9 **Sebastian Westenhoff** (University of Gothenburg) *ONLINE*
Progress towards revealing the structural mechanism of photoactivation of sensor histidine kinases, cryptochromes and photolyases

12:00-12:30 IL10 **John T. M. Kennis** (Vrije University of Amsterdam) *ONSITE*
Spectroscopic evidence for glutamine tautomerization in BLUF domains

12:30-13:30 Lunch (Lobby / Courtyard)

13:30-16:30 On-line Poster Session + coffee/tea

Session 4: Application and Engineering of Flavoenzymes I

Chair: **Frank Hollmann** (Delft University of Technology)

16:30-17:00	IL11	Marco Fraaije (University of Groningen) <i>Flavin cofactor engineering</i>	ONSITE
17:00-17:30	IL12	Kridsakorn Prakinee (Vidyasirimedhi Institute of Science and Technology) <i>Mechanistic studies and rational engineering for increasing catalytic capability of flavin-dependent halogenases</i>	ONLINE
17:30-18:00	IL13	Jason Micklefield (University of Manchester) <i>Flavin-dependent halogenases & integrated catalysis</i>	ONLINE

Session 5: Young Investigator Talks (Vincent Massey Award Candidates)

18:05-18:25	YIT1	Gianluca Catucci (Universtiy of Turin) <i>Human flavin-containing monooxygenase 1 and the stabilization of its C4a-hydroperoxy flavin intermediate</i>	ONSITE
18:25-18:45	YIT2	Daniel Eggerichs (Ruhr-Universität Bochum) <i>Bacterial eugenol oxidases: From sequence to biotechnology</i>	ONSITE
18:45-19:05	YIT3	Rajiv Kumar Kar (University of Technology Berlin) <i>Interpretation of absorption spectra of C8-modified flavin</i>	ONLINE
19:15-22:00		Beer & Pretzels (Courtyard)	

Tuesday, September 7, 2021

08:55-09:00 Opening & Announcements

Session 6: Application and Engineering of Flavoenzymes II

Chair: **Marco Fraaije** (University of Groningen)

09:00-09:30 IL14 **Sheila Sadeghi** (University of Torino) *ONSITE*
FAD-dependent enzymes: from biotechnology to fundamentals and back

09:30-10:00 IL15 **Caroline E. Paul** (Delft University of Technology) *ONLINE*
Flavoprotein catalysis: exploring the nicotinamide coenzyme versatility of monooxygenases

10:00-10:30 Coffee/tea break
sponsored by
Ing. Prager Elektronik GmbH 

Session 7: Flavoenzymes in health & disease I

Chair: **Andrea Mattevi** (University of Pavia)

10:30-11:30 IL16 **R. Martin Vabulas** (Charité – University Medicine Berlin) *ONSITE*
Metabolic reprogramming of melanoma cells during vitamin B2 deficiency

11:30-12:00 IL17 **Alexander Galkin** (Columbia University) *ONSITE*
Redox-dependent loss of flavin by mitochondrial complex I in brain ischemia/reperfusion injury

12:00-12:30 IL18 **Flaviano Giorgini** (University of Leicester) and **Nigel Scrutton** (University of Manchester) *ONLINE*
The flavoprotein kynurenine 3-monooxygenase: relevance to Huntington's disease pathogenesis and therapeutics

12:30-13:30 Lunch (Lobby / Courtyard)

13:30-16:30 On-site Poster Session + coffee/tea

Session 8: Young Investigator Talks II (Vincent Massey Award Candidates)

16:45-17:05	YIT4	Nakia Polidori (University of Graz) <i>Old Yellow Enzymes as oxime reductases: investigating the reaction mechanism with crystallography and bioinformatics</i>	ONSITE
17:05-17:25	YIT5	Marina Toplak (University of Freiburg) <i>The acyl-CoA dehydrogenase-like enzyme TdaE acts as internal flavoprotein dioxygenase in tropone natural product synthesis</i>	ONSITE
17:25-17:45	YIT6	Nerea Novo (University of Zaragoza) <i>Mutation of a pivotal residue in the apoptosis inducing factor leads to critical aftermath on NADH oxidation</i>	ONLINE
17:45-18:05	YIT7	Juan Luis Pacheco-Garcia (University of Granada) <i>Characterization of the effects of natural missense mutations in the multifunctional NQO1 protein</i>	ONLINE
18:15-22:00		Beer & Pretzels (Courtyard)	

September 8, 2021

08:55-09:00 Opening & Announcements

Session 9: Structure-function relationships in flavoenzymes I

Chair: **Willem van Berkel** (Wageningen University)

09:00-09:30 IL19 **Karen Allen** (Boston University) ONSITE
Adaptations for substrate specificity and catalytic diversity in the flavin-dependent amine oxidase superfamily

09:30-10:00 IL20 **Samer Gozem** ONSITE
(Gorgia State University)
Electrostatic tuning maps and average protein configurations: strategies to aid in studying flavoproteins

10:00-10:30 IL21 **Monica Balsera** (Institute of Natural Resources and Agrobiology of Salamanca) ONLINE
Structural and functional diversity of bacterial thioredoxin reductase flavoenzymes

10:30-11:00 Coffee/tea break

Session 10: Flavin-dependent electron bifurcation

Chair: **Anne-Frances Miller** (University of Kentucky)

11:00-11:30 IL22 **Ulrich Ermler** ONSITE
(Max-Planck-Institute of Biophysics)
Structural basis of flavin-based electron bifurcation

11:30-12:00 IL23 **Russ Hille** (University of California) ONSITE
Electron-transferring flavoproteins and electron bifurcation

12:00-12:30 IL24 **Wolfgang Buckel** (Philipps-University Marburg) ONLINE
Rapid kinetics reveal surprising flavin chemistry in a bifurcating electron transfer flavoprotein

13:00-19:00 Sandwich Lunch; Free Time / **Excursions**

September 9, 2021

08:55-09:00 Opening & Announcements

Session 11: Structure-function relationship in flavoenzymes II

Chair: **Russ Hille** (University of California)

09:00-09:30	IL25	Andrea Mattevi (University of Pavia) ONSITE <i>The structural and functional characterization of mammalian flavin-containing monooxygenases using ancestral sequence reconstruction</i>
09:30-10:00	IL26	Dirk Tischler (Ruhr-University Bochum) ONSITE <i>Indole monooxygenase: catalytic and structural insights</i>
10:00-10:30	IL27	Bastian Daniel (University of Graz) ONSITE <i>BBE-like proteins: diverse catalysts with recurrent features</i>
10:30-11:00		Coffee/tea break
11:00-11:30	IL28	Janine Copp (University of British Columbia) ONLINE <i>Repeated emergence of an enzymatic function from an ancestral scaffold</i>
11:30-12:00	IL29	Marta Martinez-Julvez (University of Zaragoza) ONLINE <i>Flavoenzymes and FMN/FAD biosynthesis in Brucella ovis</i>
12:00-13:00		Lunch (Lobby/Courtyard)
13:30-14:30		Scientific Committee Meeting (Vincent-Massey-Awards and Poster prizes)
19:00-22:00		Conference Dinner (Aula University of Graz) Vincent Massey and Poster Awards
19:30-20:15	IL30	Willem von Berkel (Wageningen University) ONSITE <i>The future of flavins</i>



Side Events

September 8, 2021

Graz City Tour



Meeting Point: Foyer Lecturer Hall H, Kopernikusgasse 24
Time: 2 p.m.

Wine Tasting Georgiberg:



Meeting Point for Bus Transfer: Kopernikusgasse 24/outside
Time: 1.30 p.m.

Zotter Chocolate Tour



Meeting Point for Bus Transfer: Kopernikusgasse 24/outside
Time: 1.30 p.m.



Further Information

Further Information and Useful Links



Getting here:

www.graztourismus.at/en/travel-and-transport/getting-here



Graz Tourismus:

www.graztourismus.at/en



Bus & Tram:

www.graztourismus.at/en/travel-and-transport/mobile-in-graz/bus-and-tram



Taxi:

www.graztourismus.at/en/travel-and-transport/mobile-in-graz/taxi



City Map of Graz:

www.graztourismus.at/en/travel-and-transport/maps/interactive-map



COVID-19: Entry into Austria

https://www.oesterreich.gv.at/en/themen/coronavirus_in_oesterreich/pre-travel-clearance.html