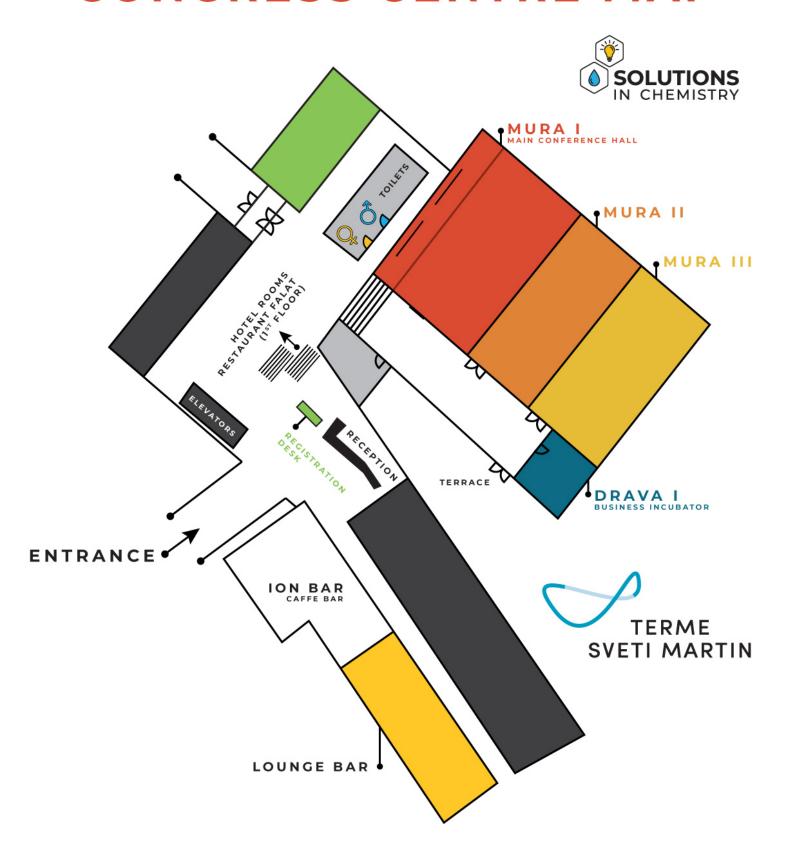


8-11 November 2022 · Sveti Martin na Muri, Croatia

INTERNATIONAL CONFERENCE RECOGNISED BY THE EUROPEAN CHEMICAL SOCIETY (EuChemS)



CONGRESS CENTRE MAP



RESTAURANT FALAT (15T FLOOR) WELCOME COCKTAIL

PUB POTKOVA CONFERENCE PARTY TREASURY OF MEÐIMURJE



SOLUTIONS IN CHEMISTRY 2022

8-11 November 2022

Hotel Terme Sveti Martin^{☆☆☆☆} Sveti Martin na Muri, Croatia

PROGRAMME BOOK

UNDER THE AUSPICES OF

Zoran Milanović, President of the Republic of Croatia

Ministry of Economy and Sustainable Development of the Republic of Croatia Ministry of Science and Education of the Republic of Croatia

> Croatian Academy of Sciences and Arts Croatian Academy of Engineering

> > Ruđer Bošković Institute

University of Zagreb University North

Croatian Chamber of Economy Croatian Employers' Association Croatian Engineering Association Croatian Society for Natural Sciences

Faculty of Science (UniZg)
Faculty of Chemical Engineering and Technology (UniZg)

Teacher Education and Training Agency, Croatia

City of Čakovec City of Mursko Središće

SPONSORS

(IN ALPHABETICAL ORDER)

GOLDEN SPONSORS











SILVER SPONSORS







BRONZE SPONSORS













EXHIBITORS





























SUPPORTERS AND DONORS











ORGANISATION

SCIENTIFIC AND ORGANISING COMMITTEE

Ernest Meštrović, Chair
Vladislav Tomišić, Chair
Andrea Usenik, secretary
Klemen Bohinc
Nikola Bregović
Predrag Čudić
Petar Kassal
Danijel Namjesnik
Predrag Novak
Josip Požar
Rosana Ribić
Giovanna Speranza
Marina Šekutor

EDUCATION SUBCOMMITTEE

Ines Topalović Piteša

Olgica Martinis, *Chair*Jurica Bauer
Dražen Crnčec
Vladimir Stilinović

ORGANISER

Croatian Chemical Society
Horvatovac 102a
HR-10000 Zagreb, Croatia
T: +385 1 4606-163
e-mail: sic@hkd.hr

PROGRAMME BOOK EDITORS

web: sic.hkd.hr

Andrea Usenik
Danijel Namjesnik
Marina Šekutor
Rosana Ribić
Ernest Meštrović
Vladislav Tomišić

Welcome from the Chairmen of the Organising Committee

On behalf of the Organising Committee, it is our great pleasure to welcome you to the Solutions in Chemistry 2022 conference taking place in Sveti Martin na Muri from 8 to 11 November 2022. The focus of the Conference organised by the Croatian Chemical Society can be deduced from the two meanings of the word "Solutions" in its title. The first one refers to the solution as a phase and comprises the experimental and computational studies of the processes occurring in liquid media. The second one is concerned with general solutions to chemical problems which are met in academia and various branches of industry. Thus, the Conference aims to gather the scientists dealing with different fields of chemistry and to deepen and strengthen the collaboration of the experts from universities, research institutes, schools, and industrial companies.

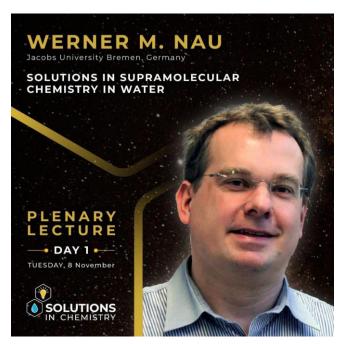
A number of plenary, invited, and section lectures will be delivered by top-tier scientists, and various sponsor presentations and workshops will be held as well. These will provide a new insight into the current problems in chemical science and industry, and an opportunity to learn and obtain new skills from prominent chemists and entrepreneurs. In addition, the Conference participants will have a chance to find out more about the newest instruments and consumables available from our numerous sponsors, exhibitors, and donors to whom we are grateful for their support. The poster session will give everyone the opportunity to present their work: from undergraduate students to experienced scientists in diverse fields of chemistry and chemical engineering. The education section will be held in parallel, focusing on finding new solutions in teaching new generations of chemists.

A significant emphasis will also be put on an irreplaceable part of every great conference: social activities. Thus, we plan to organize various social events and encourage the participants to interact in a non-formal manner as well as to take the opportunity to discover the beauty of the picturesque Međimurje County and taste the local delicacies.

LET'S FIND THE NEW SOLUTIONS IN CHEMISTRY!

Ernest Meštrović & Vladislav Tomišić

(IN CHRONOLOGICAL ORDER)

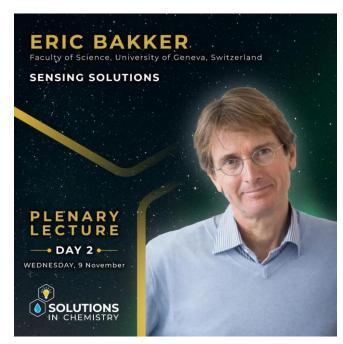


Professor Werner M. Nau obtained his MSc in 1991 at St. Francis Xavier University, Canada, and his PhD in 1994, at the University of Würzburg, Germany. He was a postdoctoral researcher at the University of Ottawa, Canada, and became an Assistant Professor at the University of Basel, Switzerland. Since 2002, he is a Professor of Chemistry at Jacobs University Bremen (Germany), and, since 2011, Dean of the faculty. Prof. Nau has held visiting professorships at the University of Wisconsin-Madison (USA), the University of Cambridge (UK), the University of Huelva (Spain), and the Institute of Chemical Research of Catalonia (Spain). His research combines principles of organic photochemistry with spectroscopy and supramolecular chemistry and is directed towards applications in bioanalytical chemistry, peptide folding, drug delivery, drug discovery, catalysis, chiral recognition, fluorescent dye design, chemosensing, as well as enzyme and membrane assays. His research is published in ca. 300 research publications, 6 book chapters, and 4 patents. Prof. Nau received several scientific awards; the Grammaticakis-Neumann Prize of the European Photochemistry Association (2000), the ADUC-Jahrespreis für Habilitanden (2000), the Werner Prize 2002 of the Swiss Chemical Society, and the EPA-PPS Prize 2010. He has served, among others, as President (2012-2014) of the European Photochemistry Association (EPA) and Vice Chairman (2010-2013) of the Photochemistry Section of the German Chemical Society.

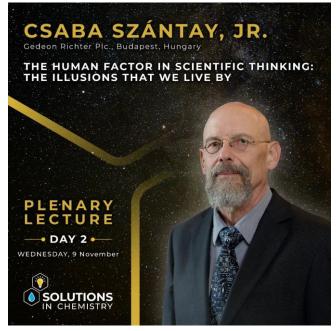


Dr Aleksandar Danilovski obtained his MSc in chemistry in 1997 at the Faculty of Science, University of Zagreb, and his PhD in 2001 at the same faculty. He started his career in the industry at the PLIVA Research Institute, where he was a member of the Management Board for 20 years. In 2009 he held the position of Senior Vice President of the Management Board XELLIA Pharmaceuticals (Denmark), and the position of Chief Scientific Officer (CSO), which he still holds today. In 2011, he founded the research company XELLIA Ltd. (Croatia) where he is the Managing Director. Dr Danilovski is one of the co-founders of a biotechnology start-up company (Pharmaero, Denmark). He is a member of the Board of Directors in Pharmaero (Denmark), of the Scientific Selection Board in Novo Holdings, REPAIR Impact Fund (Denmark), of the Board of Directors in Active Biotech (Sweden), and of the Scientific Advisory Board in Bugworks (USA/India). In 2017, he was elected as a member of the Committee for Chemistry of the Croatian Academy of Sciences and Arts, and since 2018 he is a member of the Croatian Academy of Engineering. Dr Danilovski led the research and development, registration and launch on the global market (US and EU) of more than 100 different active substances and over 200 different finished pharmaceutical products of which several innovative and patent-protected medicines with added value.

(IN CHRONOLOGICAL ORDER)

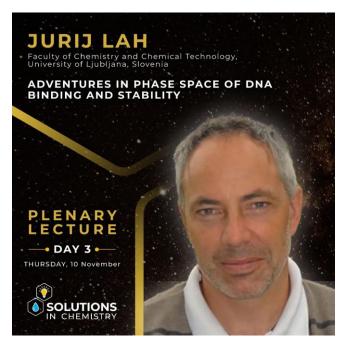


Professor Eric Bakker was educated at the Swiss Federal Institute of Technology (ETH) in Zurich, Switzerland and earned his PhD in 1993. He spent many years in the United States and Australia before moving to the University of Geneva in Switzerland where he is a professor of analytical chemistry. His research interests are in the area of chemical sensors for environmental (aquatic) and biomedical applications. The main emphasis is the development and understanding of electrochemical and optical sensing principles, often using membrane transport, complexation, and extraction phenomena. New principles and materials are developed, prototype instrumentation is engineered, and their use is tested in the final sample environment of interest, making this research quite broad in scope. His research group has published nearly 400 highly cited research papers. Prof. Bakker also serves as the Executive Editor of the journal ACS Sensors.

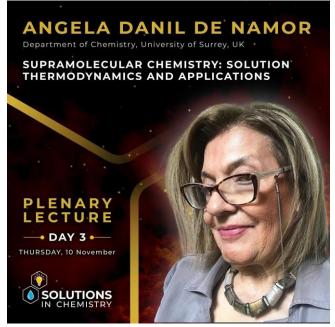


Professor Csaba Szántay, Jr. received his MSc in chemical engineering at the Technical University of Budapest in 1982, where he obtained his PhD in 1986. He was a postdoctoral fellow at Leeds University (UK) in 1988, and after he continued his work as an NMR spectroscopist in the Spectroscopic Research Department of Gedeon Richter Plc., Hungary's largest pharmaceutical company. Since 1994 he has been the Head of this department. He and his team are committed to maintaining strong ties with academia in terms of education as well as research collaborations. Prof. Szántay habilitated at the TUB in 2002, and in 2003 elected to be a Private Professor at the same university. His main fields of research are the physical and mathematical theory of NMR spectroscopy and the application of high-resolution NMR in the structure determination of organic molecules. He obtained from the Hungarian Academy of Sciences a Candidature in 1991 and a Doctor of Sciences title in 2000. One major project of his that transpired from blending philosophy, psychology, physics, mathematics, and applied NMR and MS, was published worldwide as a book (Anthropic Awareness: The Human Aspects of Scientific Thinking in NMR Spectroscopy and Mass Spectrometry. New York: Elsevier, 2015.). He has published around 190 original scientific papers, including three books. He also holds numerous high-ranking positions in various scientific committees and institutions, as well as in several foundations aimed at supporting the teaching of natural sciences in elementary and secondary schools.

(IN CHRONOLOGICAL ORDER)



Professor Jurij Lah obtained his PhD in Chemistry in 2000 at the Faculty of Chemistry and Chemical Technology, University of Ljubljana (UL FCCT), Slovenia. He was a postdoctoral researcher at the Vrije Universiteit Brussel (VUB), Belgium. Since 2013, he is a full professor in charge of courses Physical Chemistry, Biophysical Chemistry, Chemical Thermodynamics and Biomolecular Thermodynamics at the Faculty of Chemistry and Chemical Technology, University of Ljubljana, Slovenia. Prof. Lah is a distinguished lecturer, awarded four times (in 2004, 2011, 2018, and 2020) for the best lecturer at the UL FCCT. He is very active in the popularisation of science through interviews, lectures, and cover pages. He is currently principal investigator in several basic research projects and projects with the pharmaceutical industry. His main research areas include different topics related to thermodynamic stability, interactions, and structural features of biologically important molecules in relation to their function, and his recent research is focused on describing the behaviour of non-canonical nucleic acids and intrinsically disordered proteins. Prof. Lah publishes research results in reputable journals (PNAS, Angew. Chem., JACS, Nucleic Acids Res., etc.). He was awarded in 2014 for outstanding research achievements in chemistry and related sciences, and in 2019 he received Zois Award for Outstanding Achievements in Physical Biochemistry.



Professor Angela Danil de Namor is the first female professor of chemistry at the University of Surrey, UK. She graduated in biochemistry at the National University of the South, Bahia Blanca, Argentina and in 1973 obtained a PhD in chemistry at the University of Surrey, UK. After postdoctoral research sponsored by Unilever Research Laboratories, she joined the Department of Chemistry in 1977 where she is now an emeritus professor of physical chemistry. Her research interest is in the area of solution thermodynamics involving mostly supramolecular systems; solution thermodynamics of electrolytes, cyclodextrins and calix-based receptors, their interaction with ionic and neutral species and their broad applications. She published more than 170 papers in prestigious chemical journals and supervised over 50 PhD students. She has coordinated several EU contracts involving Partners from Europe, Latin America, Africa, and Middle East Countries. Prof. Danil de Namor has received numerous awards and recognitions; the Doctor Honoris Causa from three Universities in South America for contributions given to the development of chemistry in Latin America, fellow of the Royal Society of Chemistry and fellow of the International Union of Pure & Applied Chemistry (IUPAC), emeritus fellowship from the Leverhulme Trust (2014). She was the first foreign woman elected member of the National Academy of Sciences of Argentina and in 2021 Prof. Danil de Namor was awarded the Doctor of Science degree by the University of Surrey for proven evidence of the international impact of her research to advances in the discipline, following the thesis entitled "Supramolecular Chemistry: Personal Contributions to the Discipline".

(IN CHRONOLOGICAL ORDER)

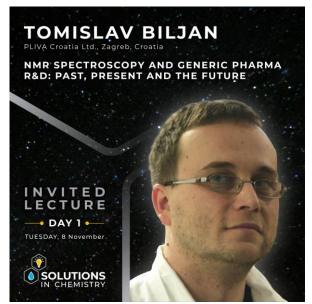


Dr Nicoletta Ravasio graduated in chemistry at the University of Milano (Italy) in 1982, and in 1987 obtained PhD in chemical sciences at the University of Bari, Italy. She is currently the research director at the "Giulio Natta" Institute of Chemical Sciences and Technologies (SCITEC) of the National Research Council (CNR), Italy. Her main scientific interests are sustainable organic synthesis and renewable raw materials. In the field of vegetable oils, she developed a selective hydrogenation process, a process for the esterification and transesterification and a process for the synthesis of bio-lubricants. Recently she has been devoted to the valorization of agri-food waste with different added value, from building materials to cosmetics, performing even better than the fossil-based ones. Dr Ravasio is principal investigator in several national and international research projects and contracts, and the author of highly cited 164 papers and 6 patents. As a recognized expert she evaluated EU Horizon 2020-Waste 7 and Horizon2020-Bio Based Industries projects. Since 2015 she is chair of Oleochemistry, Molecule and Polymer Science division of European Federation on Lipid Science, and since 2018 a member of Technical-Scientific Committee Italian Cluster of Green Chemistry (SPRING), and a member of Team of Experts to support the High Level Roundtable on the implementation of the Chemicals Strategy for Sustainability (EuChemS). In 2021 she was awarded with the Piero Pino medal of the Italian Chemical Society "For studies of scientific, innovative and applicative relevance in the field of heterogeneous catalysis with particular attention to the substitution of noble metals in fine chemicals synthesis and to selective transformation of renewable raw materials".

INVITED LECTURES

(IN CHRONOLOGICAL ORDER)













INVITED LECTURES

(IN CHRONOLOGICAL ORDER)











Winner of the **Leopold Ružička Award** given by the

Croatian Chemical Society



SECTION LECTURES

(IN CHRONOLOGICAL ORDER)

SL1 Gordan Horvat: Cyclopeptides as Versatile Anion Sensors in Solution SL2 Gracjan Kurpik: Metallosupramolecular Assemblies – From Simple Complexes to Functional Nanostructures SL3 Miroslava Čonková: From Single Molecule to Responsive Aggregate: Multiresponsive Photoswitch in Nonpolar Solvents **SL4** Nikola Sakač: Solutions for Pollutants Sensing – Surfactants, Estrogen and Glyphosate Sensors **SL5** Ivo Piantanida: Triarylboranes: Novel Type of Dye for Biomacromolecules Maša Safundžić Kučuk: JGL's Experience in Demonstrating Extended Pharmaceutical Equivalence in **Drug Product Solutions SL7 Želimir Kurtanjek:** Causal Analysis of Molecular Descriptors of Eutectic Solutions of Choline Chloride Systems Applicable in Pharma Technologies Riva Sailani: Spectrophotometric Kinetic and Thermodynamic Investigation for the Oxidation of Anilines by Hexachloroiridate(IV) in Solution Media: A Combined Experimental and Computational Study **SL9** Aleks Logožar: ML₂ Metal Complexes with bpa and imda Ligands – In Solution and Solid-State **SL10** Marin Liović: Halogenide Anions as Hydrogen and Halogen Bond Acceptors in Simple Cocrystals with a Neutral Halogen Bond Donor **SL11** Davor Kovačević: Applications of Polyelectrolyte Multilayers for the Reduction of Bacterial Adhesion **SL12** Ina Erceg: Comparison of Albumin and Chitosan Effects on Calcium Phosphate Formation on Titanate Nanomaterials **SL13** Gloria Zlatić: Protective Ability of *Artemisia Annua* L. Against Microbiologically Influenced Corrosion of Aluminium Alloy 5083 Caused by Pseudomonas Aeruginosa in Artificial Seawater **EDUCATION SECTION LECTURES**

| ESL1 | Daria Stejskal: Innovative Approaches in Teaching Chemistry |
|------|---|
| ESL2 | Mirta Malčić, Suzana Lovrić: From Old to New Towards Sustainable Development |
| ESL3 | Nikola Bedeković: Carbonated Water: Acid, Buffer or Both? |
| ESL4 | Monika Pavić, Maja Jurić-Babaja: Challenges in Chemistry Classes Using ICT Technology |
| ESL5 | Marijana Bastić : How to Facilitate the Evaluation of Student Achievements by Using Written Papers in Chemistry? |
| ESL6 | Jurica Bauer: Fostering Transdisciplinary Learning in Science and Technology |
| ESL7 | Olgica Martinis: The Current Challenges of Improving Chemistry Learning |



DAY 1 • TUESDAY, 8 November

| | REGISTR | ATION | PRE-CONFERENCE WORKSHOP (Mura III) Solubility Crystallization with Small Scale Parallel | | |
|---------------|--|---|---|---|--|
| 9:00 – 14:00 | EARLY CHECK IN from 12 h for guests of Hotel Terme Sveti Martin | | 9:30 – 10:30 | Crystallizers | |
| | | | 10:30 – 10:45 | BREAK | |
| | noter renne s | veti iviartiii | 10:45 – 11:45 | API Improvements through Co-Crystallization | |
| | | | 11:45 – 12:00 | BREAK | |
| | | | 12:00 – 12:30 | Nucleation and Induction Time Measurements | |
| | | | | | |
| 14:00 – 14:40 | OPENING CEREMONY (Mura Halls) | | | | |
| | SECTION I (Mura Halls) (Chair: Vladislav Tomišić) | | | | |
| 14:40 – 15:25 | PLENARY | NARY Werner M. Nau: SOLUTIONS IN SUPRAMOLECULAR CHEMISTRY IN WATER | | | |
| 15:25 – 15:55 | Predrag Čudić: POTENTIAL SOLUTION FOR PEPTIDE-BASED DRUG DELIVERY TO THE BRAIN: DESIGN AND ACTIVITY OF MULTIFUNCTIONAL CYCLIC PEPTIDE—BASED ANALGESICS | | | | |
| 15:55 – 16:15 | | Gordan Hor | rvat: Cyclopeptides as Versatile Anion Sensors in Solution | | |
| 16:15 – 16:35 | SECTION | Gracjan Kur Nanostructu | pik: Metallosupramolecular Assemblies – From Simple Complexes to Functional ares | | |
| 16:35 – 17:15 | COFFEE BREAK (in front of Mura Halls) | | | | |
| | SECTION II (Mura Halls) (Chair: Ernest Meštrović) | | | | |
| 17:15 – 18:00 | PLENARY | PLENARY Aleksandar Danilovski: CORRELATION DOES NOT NECESSARILY IMPLY CAUSATION | | | |
| 18:00 – 18:30 | INVITED Tomislav Biljan: NMR SPECTROSCOPY AND GENERIC PHARMA R&D: PAST, PRESENT AND THE FUTURE | | | | |
| 18:30 – 19:00 | INVITED Luna Maslov Bandić: MOLECULES BEHIND WINE TASTING | | | | |
| 19:00 – 20:15 | DINNER BREAK | | | | |
| 20:15 – 21:15 | WINE TASTING by Štampar Winery (Restaurant Falat) | | | | |
| 21:15 – 22:45 | WELCOME PARTY (Restaurant Falat) | | | | |

| DAY 2 • WEDNESDAY, 9 November | | | | |
|-------------------------------|---|--|--|--|
| 8:30 – 9:45 | REGISTRATION FOR TEACHERS (1 DAY) | | | |
| | SECTION III – PART ONE (Mura Halls) (Chair: Petar Kassal) | | | |
| 9:00 – 9:45 | PLENARY Eric Bakker: SENSING SOLUTIONS | | | |
| | EDUCATION SECTION – PART ONE (Chair: Vladimir Stilinović) | | | |
| 9:45 – 10:30 | PLENARY Csaba Szántay, Jr.: THE HUMAN FACTOR IN SCIENTIFIC THINKING: THE ILLUSIONS THAT WE LIVE BY | | | |
| 10:30 – 11:00 | COFFEE BREAK (Ion Bar) | | | |

MORNING SECTIONS:

| SECTION III – PART TWO (Mura I + II) (Chair: Petar Kassal) | | | | |
|---|---|--|--|--|
| | Ivo Piantanida: Triarylboranes: Novel Type of Dye for Biomacromolecules | | | |
| SECTION | Miroslava Čonková: From Single Molecule to Responsive Aggregate: Multiresponsive Photoswitch in Nonpolar Solvents | | | |
| | Nikola Sakač: Solutions for Pollutants Sensing – Surfactants, Estrogen and Glyphosate Sensors | | | |
| | Selvita | | | |
| CDONCODE | CAS | | | |
| SPONSORS | Labtim | | | |
| | Shimadzu | | | |
| | EDUCATION SECTION – PART TWO (Mura III) (Chairs: Jurica Bauer, Vladimir Stilinović) | | | |
| | SECTION | | | |

| | EDUCATION SECTION – PART TWO (Mura III) (Chairs: Jurica Bauer, Vladimir Stilinović) | | | |
|---------------|--|---|--|--|
| 11:00 – 11:30 | INVITED | Ewald Edink : SUPPORTING STUDENTS IN SOLVING QUANTITATIVE CHEMICAL PROBLEMS USING AN ADAPTIVE DIGITAL PLATFORM | | |
| 11:30 – 12:00 | INVITED | Krešimir Molčanov: CHEMISTRY IN THREE DIMENSIONS: CHIRALITY, SYMMETRY, ISOMERISM | | |
| 12:00 – 12:20 | | Mirta Malčić, Suzana Lovrić: From Old to New Towards Sustainable Development | | |
| 12:20 – 12:40 | SECTION | Daria Stejskal: Innovative Approaches in Teaching Chemistry | | |
| 12:40 – 13:00 | | Nikola Bedeković: Carbonated Water: Acid, Buffer or Both? | | |

| 13:00 – 14:30 | ୍ଦିଆ LUNCH BREAK 🔯 |
|---------------|--------------------|
|---------------|--------------------|

AFTERNOON SECTIONS:

| 14:30 – 15:30 | SiC × AlphaChrom PUB QUIZ – details at the registration desk! | | | | |
|---------------|---|---|--|--|--|
| 15:30 – 15:50 | SHORT BREAK | | | | |
| | SECTION IV (Mura I + II) (Chair: Ines Topalović Piteša) | | | | |
| 15:50 – 16:20 | INVITED IVA Rezić: SOLVING COMPLEX PROBLEMS IN SOLUTION CHEMISTRY BY DESIGN OF EXPERIMENT | | | | |
| 16:20 – 16:50 | INVITED Nikolina Letić: FUNDING OPPORTUNITIES IN INNOVATIVE PROJECTS FOR THE 2021–2027 PERIOD | | | | |
| 16:50 – 17:30 | | POSTER SETUP | | | |
| | EDUCATION SECTION – PART THREE (Mura III) (Chair: Vladimir Stilinović) | | | | |
| 14:30 – 14:50 | | Marijana Bastić: How to Facilitate the Evaluation of Student Achievements by Using Written Papers in Chemistry? | | | |
| 14:50 – 15:10 | SECTION | Monika Pavić, Maja Jurić-Babaja: Challenges in Chemistry Classes Using ICT Technology | | | |
| 15:10 – 15:30 | | Jurica Bauer: Fostering Transdisciplinary Learning in Science and Technology | | | |
| 15:30 – 15:50 | | Olgica Martinis: The Current Challenges of Improving Chemistry Learning | | | |
| 15:50 – 17:00 | ROUND TABLE What Our Education Gave Us? ("Što je nama naša nastava dala") – Mementos, comments, and critiques by former Croatian students (Filip Topić, Ilija Čorić, Jana Volarić, Vedran Vuković, Petra Vizjak, Anđela Šarić) | | | | |
| 17:00 – 17:30 | EVALUATION | | | | |
| 17:30 – 20:00 | POSTER SESSION (Mura I + II) BEER BREAK by local craft brewery "Lepi Dečki" | | | | |
| 20:00 – 21:00 | DINNER BREAK | | | | |
| | SECTION H ₂ O (Pub Potkova) (Chair: Nikola Bregović) | | | | |
| 21:00 – 21:30 | INVITED Vladimir Stilinović: DISCOVERIES, CONTROVERSIES AND BEHEADINGS – HOW WATER STOPPED BEING AN ELEMENT | | | | |
| 21:30 – 🚳 | #MoreThanWater CONFERENCE PARTY with DJ Bregi | | | | |

DAY 3 • THURSDAY, 10 NOVEMBER

| | SECTION V – PART ONE (Mura I + II) (Chair: Rosana Ribić) | | | | | |
|---|--|--|---|--|--|--|
| 9:00 – 9:45 | PLENARY | LENARY Jurij Lah: ADVENTURES IN PHASE SPACE OF DNA BINDING AND STABILITY | | | | |
| 9:45 – 10:15 | INVITED | Žiga Jakopin : STRUCTURAL REQUIREMENTS FOR IN VITRO AND IN VIVO ACTIVITY OF NOD2 AGONISTS | | | | |
| 10:15 – 10:25 | SPONSORS | IMROH (IMI) | | | | |
| 10:25 – 10:35 | SPONSORS | Jasika | | | | |
| 10:35 – 11:10 COFFEE BREAK (in front of Mura Halls) | | | | | | |
| | | SECTION V – PART (Chair: Rosa | | | | |
| 11:10 – 11:30 | | Maša Safundžić Kučuk: JGL's Experience Equivalence in Drug Product Solutions | e in Demonstrating Extended Pharmaceutical | | | |
| 11:30 – 11:50 | SECTION | Želimir Kurtanjek : Causal Analysis of Molecular Descriptors of Eutectic Solutions of Choline Chloride Systems Applicable in Pharma Technologies | | | | |
| 11:50 – 12:10 | | Riya Sailani : Spectrophotometric Kinetic and Thermodynamic Investigation for the Oxidation of Anilines by Hexachloroiridate(IV) in Solution Media: A Combined Experimental and Computational Study | | | | |
| 12:10 – 13:45 | LUNCH BREAK | | | | | |
| | | SECTION VI (Mura I + II) (Chair: Josip Požar) | | | | |
| 13:45 – 14:30 | PLENARY | Angela Danil de Namor: SUPRAMOLECULAR CHEMISTRY: SOLUTION THERMODYNAMICS AND APPLICATIONS | | | | |
| 14:30 – 15:00 | INVITED | Giuseppe Cappelletti: TAILORING THE LIQUID/LIQUID INTERFACE BY TRADITIONAL AND PICKERING GREEN EMULSIONS | | | | |
| 15:00 – 15:20 | SECTION | Aleks Logožar: ML ₂ Metal Complexes w Solid-State | rith bpa and imda Ligands – In Solution and | | | |
| 15:20 – 15:40 | SECTION | drogen and Halogen Bond Acceptors in Simple I Donor | | | | |
| | | CONFERENCE | EXCURSION | | | |
| 16:15 – 17:00 | ORGANISED BUS TRANSIT: Terme Sveti Martin → Čakovec + a surprise visit The buses (GROUP 1 and GROUP 2) leave at 16:15 from the main entrance to Hotel Terme Sveti Martin. PLEASE BE THERE AT 16:00. Thank you! | | | | | |
| 17:00 – 18:15 | GROUP 1 GROUP 2 Treasury of Međimurje Local food tasting by Slađana Herman | | | | | |
| 18:15 – 18:30 | GROUP SWITCH | | | | | |
| 18:30 – 19:45 | Local fo | GROUP 1 GROUP 2 Local food tasting by Slađana Herman Treasury of Međimurje | | | | |
| 19:45 – 20:15 | ORGANISED BUS TRANSIT: Čakovec → Terme Sveti Martin | | | | | |
| 21:00 – 🚱 | CONFERENCE DINNER (Mura Halls) Classical serving, local food paired with local wines, live music | | | | | |

| DAY 4 • FRIDAY, 11 | . NOVEMBER |
|---------------------------|------------|
|---------------------------|------------|

| 9:00 – 9:30 | WAKE UP LECTURE | Surprise, surprise A positive one! | | | |
|---------------|--|---|---|--------------------------------|--|
| | SECTION VII (Mura I + II) (Chair: Giovanna Speranza) | | | | |
| 9:30 – 10:15 | PLENARY | Nicoletta Ravasio: CHEMICAL SOLUTIONS FOR AGRI–FOOD WASTE UPCYCLING | | | |
| 10:15 – 10:35 | | Davor Ko Adhesior | ovačević : Applications of Polyelectrolyte Multilayers 1 | for the Reduction of Bacterial | |
| 10:35 – 10:55 | SECTION | | g: Comparison of Albumin and Chitosan Effects on Ca Nanomaterials | alcium Phosphate Formation on | |
| 10:55 – 11:15 | | | atić: Protective Ability of <i>Artemisia Annua</i> L. Against n of Aluminium Alloy 5083 Caused by <i>Pseudomonas</i> | = : | |
| | SECTION VIII (Mura I + II) (Chair: Marina Šekutor) | | | | |
| 11:15 – 11:45 | INVITED Winner of the Leopold Ružička Award given by CCS | | Igor Živković: ALL BUT ONE: HOW NEGATIVE CATALYSIS SHAPED EVOLUTION OF THE ISOLEUCYL—tRNA SYNTHETASE'S EDITING DOMAIN | Leopold Ružička | |
| 11:45 – 12:00 | BEST POSTER PRESENTATION Winner of the Tomislav Cvitaš Award given by CCS | | Presenting author to be announced after the Poster session | TOMISLAV CVITAŠ AWARD | |
| 12:00 – 12:30 | CLOSING CEREMONY SEE YOU IN 2024! | | | | |

POSTER PRESENTATIONS

The Poster session will be held on 9 November. Authors will be able to place their posters on the assigned stands according to the numbers listed below.

Please remove your posters at the end of the session. The remaining posters will be removed by the Organising Committee and volunteers and the authors will be able to take them by the end of the Conference. Please ask our volunteers for the details.

All posters are under consideration for the Tomislav Cvitaš Award 2022.

- Wiktoria Adamska, Grzegorz Markiewicz, Artur R. Stefankiewicz
 Selective Guest Binding and Release: Tuning the Properties of Octameric Nanocapsules
- Marija Alešković, Amalija Ernečić, Sunčica Roca, Viktoriia Lazarenko, Nikola Bregović, Marina Šekutor Structural and Thermodynamic Features of Diamondoid Ammonium Salt Inclusion Complexes with Cyclodextrins
- Jasna Alić Stolar, Tomislav Stolar, Zoran Štefanić, Krunoslav Užarević, Marina Šekutor Sustainable Solution for Synthesis of Diamondoid Ethers
- **Tea Babić, Andrea Usenik, Katarina Pičuljan, Nikola Bedeković, Josip Požar**Complexation Thermodynamics of Benzene Derivatives with Macrocyclic Receptors
- P5 Nikola Bedeković, Vladimir Stilinović, Dominik Cinčić
 Stoichiometric Diversity of Halogen Bonded Cocrystals Derived from *o*-Diiodotetrafluorobenzene and Monotopic Acceptors
- P6 <u>Branimir Bertoša</u>, Zoe Jelić Matošević Molecular Modelling of MntR Transcription Factor from *Bacillus Subtilus*
- P7 <u>Katijana Bilandžić</u>, Renata Odžak, Matilda Šprung Biological Activity of 3-Aminoquinuclidine Quarternary Salt
- P8 <u>Nataša Burić</u>, Marina Šekutor Preparation and Mass Spectral Characterization of Diamondoid Derivatives
- P9 <u>Marija Cvetnić</u>, Davor Mendeš, Nikola Bregović, Vladislav Tomišić Thermodynamics of Several Ion-Pairings in Acetonitrile
- P10 <u>Karla Dubaić</u>, Leo Štefan, Maša Safundžić Kučuk Rheological Characterization – Important Tool in Reverse Engineering of Ophthalmic Solutions
- P11 Ina Erceg, Marija Milić, Krunoslav Ilić, Darija Domazet Jurašin, Nadica Maltar Strmečki, Ivana Vinković Vrček, Maja Dutour Sikirić
 Calcium Phosphate/Titanate Nanomaterial Composites for Biomedical Applications
- P12 <u>Luka Fotović</u>, Nikola Bedeković, Josip Požar, Vladimir Stilinović Can Halogen Bond Pay the Enthropy Penalty?
- P13 <u>Josipa Golenja</u>, Michael Sulyok, Ivana Dodlek Šarkanj, Bojan Šarkanj LC-MS/MS as a Solution in Precise, Selective, Confirmatory and Cost-Effective Food Multi-Contaminant Analysis

- P14 Boris Gomaz, Zoran Štefanić
 - Structure Comparison and Structural Alignments of Oligomeric Purine Nucleoside Phosphorylases
- P15 Gordan Horvat, Filip Kučas, Neven Golenić

A Computational Study of Calixarene-Cyclopeptide Anion Receptors

- Suzana Inkret, Nadežda Radmilović, Kristina Smokrović, Nadica Maltar-Strmečki, Maja Dutour Sikirić P16
 - Influence of Differently Stabilized Silver Nanoparticles on Calcium Phosphate Formation and Transformation
- Irena Ivanišević, Marko Zubak, Petar Kassal

Glass Surface Modification with Inkjet Printable Amphiphilic Silver Nanoparticles

- Ivona Jasprica, Petar Horvat, Katarina Zrnc, Karl Bonney, Vidar Bjornstad, Ernest Meštrović, Robert Vianello, Lucija Hok, Nikola Bregović, Josip Požar, Katarina Leko, Vladislav Tomišić Utilization of a Kinetic Isotope Effect to Decrease Decomposition of Ceftriaxone in a Mixture of D₂O/H₂O
- Ilija Klarić, Jelena Kovačić, Mario-Livio Jeličić, Ana Mornar, Snježana Zubčić, Daniela Amidžić Klarić Gluten in Dietary Supplements Used in the Treatment of Inflammatory Bowel Diseases
- Jelena Kovačić, Mario-Livio Jeličić, Daniela Amidžić-Klarić, Ana Mornar Optimization of LC-QqQ-MS/MS Method for Quantification of Andrographolides in Human Plasma
- **P21** Željka Boček, <u>Sara Krivačić</u>, Petar Kassal

All-Solid-State Flexible Ammonium-Selective Electrode Based on Inkjet Printed Graphene Solid Contact

Marija Kuštro, Dubravka Tavra, Kristina Bule, Viktorija Prevarić, Matija Cvetnić, Šime Ukić, Tomislav Bolanča, Martina Miloloža, Marinko Markić, Lidija Furač, Dajana Kučić Grgić

Determination of the Optimal Conditions for the Biodegradation of Polyvinly Chloride by the Yeast Candida Parapsilosis Using a Full Factorial Plan

Dubravka Madunić-Čačić, Blaženka Ćiško-Anić, Nikola Sakač, Marija Jozanović

Potentiometric Sensors and Water Solutions – Solution for Surfactant Analysis

Antonio Magnabosco, Gordana Majstorović, Tomislav Portada

Synthesis and Solvatochromism of Three Novel Brooker's Merocyanine Analogues

Lucija Marić, Nikola Bedeković, Vladimir Stilinović

Temperature Effect on Coordinative, Halogen and Tetrel Bonds in Crystal Structure Obtained from Lead Tiocyanate and 3-lodopyridine

Marina Mavrinac, Vlasta Bertone **P26**

> Impurities in Latanoprost Eye Drops: Analytical Procedure Lifecycle Management and QbD Approach in That Process

Mia Mesić, Tin Klačić, Davor Kovačević

Divalent Cation Effects on Poly(Diallydimethylammonium Chloride)/Poly(Sodium 4-Styrensulfonate) Nanofilm Deposition

Valentina Milašinović, Krešimir Molčanov, Petar Štrbac

Charge Density of Tetracyanoethylene (TCNE) Radical Anion

Matija Modrušan, Lucija Otmačić, Nikolina Vidović, Nikola Cindro, Ivo Crnolatac, Giovanna Speranza, Gordan P29 Horvat, Vladislav Tomišić

Thermodynamics of Anion Binding by Pentaphenylalanine in Acetonitrile

- Filip Perlitius, Anna Walczak, Miroslava Čonková, Grzegorz Markiewicz, Jack Harrowfield, Artur R. Stefankiewicz Dimeric Capsule vs. Columnar Polymer: Structural Factors Determining the Solution and Solid-State Aggregation Behavior of Amino Acid Functionalized BTA Derivatives
- Mateja Peršić, Mirela Samardžić, Andrea Dandić, Mateja Budetić P31

A New Solid-State Promethazine Hydrochloride-Selective Sensor Based on Functionalized MWCNT

- Martina Rajić, Mario-Livio Jeličić, Jelena Kovačić, Daniela Amidžić Klarić, Nikola Cindro, Ana Mornar Turk
 Characterization of Sulfonylureas' ADME Properties Using Biomimetic Chromatography and Computational Procedures
- Ruthenium(III) Catalyzed Oxidative Degradation of Paracetamol by Hexacyanoferrate(III) in Solution Media A Computational Screening and Mechanistic Pathway
- **P34** Filip Vranješević, <u>Nikola Sakač</u>, Marija Jozanović, Maria Kolympadi Markovic, Valerije Vrček, Dean Marković Cyclic Carbamate Formation through Palladium-Catalysed CO₂ Absorption by Propargylic Amines
- P35 <u>Vesna Saršon</u>, Josipa Šumonja
 Selection of the Delivery System for the Preservative Free Ophthalmic Product
- P36 <u>Sabino Sepčić</u>, Patrizia Janković, Marko Babić, Daniela Kalafatović Design, Synthesis and Characterization of Linear and Cyclic Peptides
- Giuseppe Cappelletti, Eleonora Pargoletti, Marco Rabuffetti, Marina Simona Robescu, Sara Sangiorgio, Riccardo Semproli, Daniela Ubiali, <u>Giovanna Speranza</u>

 The BioSurf Project: A Sustainable Production of Bio-based Surfactants from Renewable Resources
- P38 <u>Petra Stanić</u>, Krešimir Molčanov Stacking Patterns of Organic Radicals in Tetracyanoquinodimethane Salts
- P39 <u>Lu Turković</u>, Zvonimir Mlinarić, Kristina Javorić, Juraj Vuić, Anamarija Skenderović, Sandro Makarić, Vladimir Radić, Tajana Silovski, Dragana Mutavdžić Pavlović, Miranda Sertić
 Optimization Studies of Solid Phase Extraction and LC-MS Analysis of CDK4/6 Inhibitors in Breast Cancer Combination Therapy in Plasma Samples
- P40 <u>Dorina Vidović</u>, Nada Košutić Hulita, Nikola Marjanović Novel Techniques for Secondary Structure Determination of Peptides in Drug Development
- P41 Sanja Vukoja, Sandra Siročić, Jelena Ranić, Tina Medančić, Diana Žgela, Lucija Hok, Ivona Jasprica, Robert Vianello, Ernest Meštrović
 - Deep Eutectic Solvent System Based on Amino Acids Derivatives
- P42 <u>Jyoti Yadav</u>, Thomas Kendall, Carmen Guguta, Swati A. Patel
 Nucleation Kinetics of Ascorbic Acid in Water and Water-Ethanol Solvent
- P43 Marko Zubak, Sara Krivačić, Petar Kassal
 Photoreduction in Solutions by Intense Pulsed Light

EVENTS

REGISTRATION

Registration for all participants will start on Tuesday, 8 November 2022 at 9:00 h. The registration desk will be placed by the Hotel Terme Sveti Martin reception desk.

PRE-CONFERENCE WORKSHOP

The Pre-Conference Workshop, organised by our golden sponsor, Technobis Crystallization Systems, will be held on Tuesday, 8 November 2022 from 9:30 to 12:30 h in three parts with short breaks. The Workshop is free for all registered participants (registered through the provided link: bit.ly/TechnobisWorkshop) regardless of participation (registration) at the Solutions in Chemistry conference.

OPENING CEREMONY

The Opening Ceremony will be on Tuesday, 8 November 2022 from 14:00 to 14:40 h at the Mura Halls. We are happy not only to open the Conference but also to start our journey of discovering the local heritage.

WINE TASTING

All participants are invited to taste the best wines from local, but very well-renowned and award-winning Štampar Winery. You will be able to learn a bit more about the Winery from the winemaker himself, Mr David Štampar, and enjoy the relaxed atmosphere at Restaurant Falat, placed on the 1st floor of Hotel Terme Sveti Martin.

WELCOME PARTY

After the wine tasting, we invite you to stay and hang out with the participants and start the Conference right – in a good atmosphere with all the right solutions.

ALPHACHROM QUIZ

Don't miss out – the AlphaChrom team has prepared something for all of you – some questions, some answers, and for the ones finding the best solutions – some great prizes! Find out more at the registration desk and at the AlphaChrom sponsor stand.

REGISTRATION FOR TEACHERS (1-DAY)

All teachers participating in the 1-day Education section will be able to register on Wednesday, 9 November from 8:30 to 9:45 h. If you arrive earlier and don't want to miss the first plenary lecture, our volunteers will be there to give you the Conference materials!

POSTER SETUP

During the poster setup, the arrangement of the Mura I + II Halls will be changed, and poster stands will be placed. Please be there on time and put your posters on the stands with numbers assigned in the *Programme book*.

POSTER SESSION

Poster session will take place in the Mura I + II Halls after the rearrangement of the Halls. You will be able to present your posters in a relaxed atmosphere and, if you like, grab a glass/bottle of beer provided by the local craft brewery Lepi Dečki – you won't be disappointed! But please, bear in mind to remove the posters after the Poster session.

INVITED LECTURE @ Pub Potkova #MoreThanWater CONFERENCE PARTY

Away from the Mura Halls, we will learn how Antoine Lavoisier changed the story behind water forever. Be prepared for something different, something #MoreThanWater.

CONFERENCE EXCURSION

You will have an opportunity to discover the true treasure of Međimurje in, you have guessed it – the Treasury of Međimurje (Riznica Međimurja) – a recently renewed, entirely different take on a museum, where you will be able to see, hear, feel, and even taste the local heritage. Taste? Yes, the well-known local chef Slađana Herman will prepare local delicacies just for you. And yes, we have a surprise visit on the way there ... So please make sure not to be late – our bus will be by the main entrance to the Hotel Terme Sveti Martin only until 16:15 h.

ORGANISED EXCURSION ALTERNATIVES

If you wish to go to a different location or you haven't applied for the Conference excursion, don't worry. There are some free alternatives provided by the Tourist Board of Međimurje County – find out more at the registration desk.

CONFERENCE DINNER

The Conference dinner will be organised at the Mura Halls on 10 November 2022 starting at 21:00 h. Be prepared to taste the best of local foods, served to you and carefully paired with local wines, while enjoying live music. And what happens afterwards — we strongly encourage you to start the dance party and make the best of your stay. As they say, the conferences are remembered by the Conference dinner — so let's raise a toast to a great one together!

WAKE UP LECTURE

We all know about "the morning after the Conference dinner" ... Well, as we stated in the Conference programme: Surprise, surprise ... Let it be that way! If you like positive surprises, meet us on Friday, 11 November 2022 in the Mura Halls from 9:00 to 9:30 h.

WINNER OF THE LEOPOLD RUŽIČKA AWARD

We are happy that Dr Igor Živković, young but already very successful chemist, will be presenting his work at Solutions in Chemistry 2022. Once again, we congratulate Dr Živković and are looking forward to the last, but certainly not least, invited lecture.

TOMISLAV CVITAŠ AWARD 2022 BEST POSTER PRESENTATION

The winner of the Tomislav Cvitaš Award will have the opportunity to present their poster to a wider audience in a short 10-minute presentation. No special preparation is needed. You can simply project your poster, but if you want to – prepare a backup presentation, you know, just in case.

CLOSING CEREMONY

Farewell, *Solutioners*! See you in 2024! Where, when? Follow us and get the information on time.

GENERAL INFORMATION

ABSTRACT PUBLICATION

All accepted abstracts are published in the Solutions in Chemistry 2022 *Book of Abstracts* (available at sic.hkd.hr for download).

SCIENTIFIC PAPERS TO BE PUBLISHED IN CROATICA CHEMICA ACTA

The full-length papers of the scientific contributions presented at the Conference will be considered for publication in *Croatica Chemica Acta*, published by the Croatian Chemical Society. The Conference attendees are cordially invited to submit their manuscripts.

CERTIFICATES OF ATTENDANCE

The Certificates of Attendance will not be printed on-site but will be sent to the participants *via* e-mail. The Organising Committee and volunteers will not be able to send them before 14 November 2022.

NAMETAGS

Access to all Conference events is possible only with your personal badge (nametag). If you need any information, you can find the members of the Organising Committee and volunteers by yellow nametags.

LECTURE PRESENTATIONS

Lecturers are kindly asked to save their presentations in .pptx or .pdf (suggested) to the computers in lecture halls before the beginning of the session in which they will give a talk (if possible, during the coffee breaks). The volunteers will be there to help you.

If you wish to connect your own laptop, please try it out at your earliest convenience to reduce possible malfunctions. VGA, HDMI, and USB-C cables and adapters will be available.

All computers used to project your presentations are Windows 10/11 based with installed Microsoft Office software and Adobe Acrobat Reader.

As noted on our website, we suggest preparing your presentations in a 16:9 aspect ratio.

COFFEE BREAKS

Coffee (espresso, instant coffee) will be served in front of the Mura Halls except for Day 2, when it will be served in Ion Bar (right from the Registration and Reception desk).

REGISTRATION DESK OPENING HOURS

Tuesday (8 Nov) from 9:00 to 19:00 h Wednesday (9 Nov) from 8:30 to 17:00 h Thursday (10 Nov) from 9:00 to 16:00 h Friday (11 Nov) from 9:30 to 12:00 h

INFORMATION & SERVICES

Feel free to contact the volunteers and the members of the Organising Committee (both recognisable by yellow nametags) regarding any possible questions, concerns, or information.

If needed, the volunteers will print important documents for you at the Registration desk (provided on a USB stick or e-mailed to sic@hkd.hr).

In the case of necessity, several chargers will be available for your phones.

PROPERTY & INSURANCE

The Conference organiser cannot accept liability for loss or damage of property, either during or as a result of the Conference. Please check the validity of your insurance.

VENUE

The Conference takes place at Hotel Terme Sveti Martin **** Izvorska 3
HR-40313 Sveti Martin na Muri Croatia

WLAN

Free wireless internet is available throughout the Conference Centre.



5 things you can't miss during your stay in Terme Sveti Martin:

- Taste the famous Međimurje layered cake made in a Terme Sveti Martin healthy way.
- 2. Fill up with energy with our thermal mineral water rich in lithium.
- 3. Relax during our outstanding Sveti Martin massage with grape seed oil.
- **4. Explore** the Wine roads and other points of interest on two wheels.
- **5. Visit** one of the last working mills on the river Mura in Međimurje.

What do you need to know about Međimurje?

Over 30 wine houses

GOLD prospecting is still active in Međimurje The birthplace of dr. RUDOLF STEINER

First railroad in Croatia World's first oil field in Peklenica



Toplice Sveti Martin d.o.o. Izvorska 3, 40313 Sveti Martin na Muri, Croatia T+385 (0)40 371 111 info@termesvetimartin.com

www.termesvetimartin.com



BOOK OF ABSTRACTS

OR VISIT bit.ly/sic-boa

NEED HELP?

#SOLUTIONERS

ASK THE







f 🧿 @SolutionsInChemistry #SiC2022

@SiC_2022 in Solutions in Chemistry