

Isotopes 2015 – Isotope effects across disciplines

Sunday, June 21	
16:00-18:00	Arrivals and registration
18:30-20:00	Welcome mixer
20:00-20:15	Opening words
20:15-21:00	Opening lecture: Yehoshua Kolodny – Hebrew University
Monday, June 22	
09:00-11:00	Morning session: Medical use of stable isotopes (Chair: Anil Modak – Cambridge Isotopes)
09:00-09:30	Keynote lecture: Yaron Ilan – Hadassah Medical Center <i>Measurement of the $^{13}\text{CO}_2/^{12}\text{CO}_2$ ratio in exhaled air following oral administration of ^{13}C-Methacetin using the non-invasive BreathID®: A novel method for assessment of liver function of patients with acute and chronic liver disorders</i>
09:30-10:00	Keynote lecture: Anil S. Modak – Cambridge Isotopes <i>Companion Diagnostics (CDx) for personalizing medication</i>
10:00-10:20	Contributed lecture: Martin Klieber – Cambridge Isotopes <i>Cytochrome P450 2C19 phenoconversion by routinely prescribed proton pump inhibitors omeprazole and esomeprazole: clinical implications for personalized medicine</i>
10:20-10:40	Contributed lecture: Yliya Rabotjagova – Crimean State Medical University <i>Evaluation of changes to CYP2C19 enzyme activity (phenotype) with the Pantoprazole-^{13}C breath test after initiating PPI therapy in GERD patients</i>
10:40-11:00	Contributed lecture: Illa Tea – University of Nantes (CEISAM-CNRS)/Australian National University <i>Isotopomics in breast cancer</i>
11:00-11:30	Coffee break
11:30-13:30	Late morning session: Isotopes in environmental sciences (Chair: Tomasz Kuder – University of Oklahoma)
11:30-12:00	Keynote lecture: Martin Elsner – Helmholtz Zentrum München <i>Current Challenges in Isotope Studies of Environmental Contaminants: Multielement Isotope Analysis and Investigations of Micropollutants</i>
12:00-12:20	Contributed lecture: Maxime Julien – University of Nantes <i>Modelling of position-specific isotope effects measured by isotopic quantitative ^{13}C NMR occurring during volatilization of environmental pollutants</i>
12:20-12:40	Contributed lecture: Martin Mihaljevic – Charles University in Prague <i>Tracing Cu and Pb dynamics in semi-arid soils near mine</i>

	<i>tailings (Kombat, Namibia) using stable isotopes</i>
12:40-13:00	Contributed lecture: Xi Wei – Helmholtz Center for Environmental Research <i>Characterization of phenols biodegradation by compound specific stable isotope analysis</i>
13:00-13:15	Contributed lecture: Noa Balaban – Ben-Gurion University <i>Isotopic fractionation during biodegradation of brominated aliphatic flame retardants</i>
13:15-13:30	Contributed lecture: Miao Yu – State Key Laboratory of Environmental Chemistry and Ecotoxicology <i>Organic Stable Isotope Analysis with GC-qMS for PBDEs in a molecular view</i>
13:30-15:00	Lunch
15:30-17:30	Afternoon session: Isotopes in biological sciences I (Chair: Miryam Bar-Matthews – Geological Survey of Israel)
15:30-16:00	Keynote lecture: Ariel Anbar – Arizona State University <i>Developing a clinically useful calcium isotope biomarker</i>
16:00-16:30	Keynote lecture: Justine P. Roth – Johns Hopkins University <i>Mechanistic Studies of Dioxygenase Activity in Cyclooxygenase-2</i>
16:30-16:50	Contributed lecture: Anton Eisenhauer – Helmholtz Centre of Ocean Research Kiel <i>Testing Ca Isotope Fractionation in mini-pigs as an animal model for trace element cycling in humans</i>
16:50-17:10	Contributed lecture: Johanna Irrgeher – University of Nat. Res. Appl. Life Sci. Vienne <i>Sr isotopes as tracers in archeological sciences</i>
17:10-17:30	Contributed lecture: Caroline Ek – Stockholm University <i>Stable isotope incorporation in Daphnia in response to toxic exposure – potential implications for estimating Trophic Magnification Factors</i>
18:30-19:30	Dinner
20:00-22:00	Mix time
Tuesday, June 23	
09:00-11:00	Morning session: Isotopes in biological sciences II (Chair: Agnieszka Dybala-Defratyka, Lodz University of Technology)
09:00-09:30	Keynote lecture: Amnon Kohen – University of Iowa <i>Interpretation of Temperature Dependence of Kinetic Isotope effects</i>
09:30-10:00	Keynote lecture: Jeroen Dickschat – University of Bonn <i>Terpenes from Microorganisms</i>
10:00-10:20	Contributed lecture: Katarzyna Romek – Lodz University of Technology <i>Position-specific isotope analysis - a retro-biosynthetic approach to predicting biosynthetic pathways?</i>

10:20-10:40	Contributed lecture: Dominika Lewicka-Szczebak – Thünen <i>The Mechanism of Oxygen Isotopic Fractionation During N₂O Production by Denitrification</i>
10:40-11:00	Contributed talk: Lynn Kamerlin – Uppsala University <i>Phosphoryl and Sulfuryl Transfer Reactions: Challenges in Interpreting Experimental and Theoretical Data</i>
11:00-11:30	Coffee break
11:30-13:30	Late morning session: Theoretical approaches for calculations of isotope effects I (Chair: Lynn Kamerlin – Uppsala University)
11:30-12:00	Keynote lecture: Iñaki Tuñón – Universitat de Valencia <i>Adiabatic and Nonadiabatic Hydride Transfer in Formate Dehydrogenase</i>
12:00-12:30	Keynote lecture: Johannes Kaestner – University of Stuttgart <i>Atom Tunneling: from Astrochemistry to Enzymes</i>
12:30-12:50	Contributed lecture: Ian Williams – University of Bath <i>Isotope Effect Calculations for Methyl Transfer</i>
12:50-13:10	Contributed lecture: Sebastian Kozuch – Ben-Gurion University <i>Heavy Atom Tunneling: Stability, Selectivity, and some Isotopes</i>
13:10-13:30	Contributed lecture: Agnieszka Dybala-Defratyka - Lodz University of Technology <i>Kinetic Isotope Effects Accompanying Degradation of Hexachlorocyclohexanes by the LinA and LinB Dehalogenases. A Computational Study</i>
13:30-15:00	Lunch
15:00-19:00	Excursion - Jerusalem Old City
19:00-20:30	Dinner
Wednesday, June 24	
09:00-11:00	Morning session: Isotope effects in chemical processes: organic and inorganic reactions (Chair: Zeev Aizenshtat – Hebrew University)
09:00-09:30	Keynote lecture: Peter Schreiner – University of Giessen <i>Tunneling Control of Chemical Reactions</i>
09:30-10:00	Keynote lecture: Piotr Paneth – Lodz University of Technology <i>Isotopic fractionation - from basic science to applications</i>
10:00-10:20	Contributed lecture: Thomas Hofstetter – EAWAG <i>Isotope Fractionation Associated with the Direct Photolysis of Chloroanilines</i>
10:20-10:40	Contributed lecture: Mahmoud Alkhatib – Helmholtz Centre for Ocean Research <i>Calcium and Strontium Isotope measurement on artificially precipitated calcium carbonate</i>
10:40-11:00	Contributed lecture: Yevgeni Zakon – Geological Survey of

	Israel <i>Dual carbon-bromine isotope effect during photolysis of brominated phenols</i>
11:00-11:30	Coffee break
11:30-13:30	Late morning session: Isotopes in Earth and planetary sciences (Chair: Alon Amrani – Hebrew University)
11:30-12:00	Keynote lecture: James Farquhar – University of Maryland <i>How did the isotopic composition of oceanic sulfate evolve in the late Archean?</i>
12:00-12:30	Keynote lecture: Hagit Affek – Yale University <i>Carbonate clumped isotope geothermometry: principles, applications, and challenges</i>
12:30-12:50	Contributed lecture: Miryam Bar-Matthews – Geological Survey of Israel <i>Stable Isotope frontiers in paleo-hydrological studies using speleothems</i>
12:50-13:10	Contributed lecture: Lubna Shawar – Hebrew University <i>Compound specific sulfur isotope approach to study the redox cycling during the deposition of Senonian oil shale in the Late Cretaceous Tethyan margin, Israel</i>
13:10-13:30	Contributed lecture: Monika Cieżka – University of Wrocław <i>Assessing anthropressure in the Świętokrzyski National Park: An approach coupling stable isotope and Electron Paramagnetic Resonance (EPR) analyses of lichen (<i>Hypogymnia physodes</i>)</i>
13:30-15:00	Lunch
15:30-16:00	Special Lecture in memory of Prof. J. Gat – Dan Yakir , Weizmann Institute of Science <i>Association between 18Δ and Carbonyl Sulfide Uptake and during CO_2 exchange between the atmosphere and land plants</i>
16:00-18:00	Poster session
18:30-22:00	Gala Dinner (The Israel Museum)
Thursday, June 25	
08:45-11:00	Morning session: Stable isotopes (traditional and non-traditional) analyses (Chair: Alexey Kamysny – Ben-Gurion University)
08:45-09:15	Keynote lecture: Thomas Prohaska – University of Nat. Res. Appl. Life Sci. Vienne <i>Spiking, marking and tracing – Isotopic tools as specific monitors and markers of elemental fluxes</i>
09:15-9:45	Keynote lecture: Hans Eggenkamp – Onderzoek & Beleving <i>Comparing stable chlorine and bromine isotope analysis; Techniques and directions for future research</i>
9:45-10:05	Contributed lecture: Tomasz Kuder – University of

	Oklahoma <i>Studies of VOCs Contaminants: Overcoming Analytical Limitations of CSIA</i>
10:05-10:25	Contributed lecture: Pierrick Nun – University of Nantes <i>Applications of ^{13}C isotopic quantitative NMR for position-specific measurements (PSIA): from biosynthetic pathway to environmental studies</i>
10:25-10:45	Contributed lecture: Alex Wolf – Israel Atomic Energy Commission <i>Analyses of stable isotopes-a multiple application opportunity</i>
10:45-11:00	Contributed lecture: Rob Peters – Picarro, Inc. <i>Cavity Ring-Down Spectroscopy as a tool for partitioning evaporation and transpiration using water isotopes</i>
11:00-11:30	Coffee break
11:30-13:30	Late morning session: Theoretical approaches for calculations of isotope effects II (Chair: Vicente Moliner – Universitat Jaume I)
11:30-12:00	Keynote Lecture: Steve Schwartz – University of Arizona <i>Protein Dynamics, Heavy Enzymes, and Protein Design for Enzymatic Catalysis</i>
12:00-12:30	Keynote lecture: Mike Webb – Caltech <i>Path-integral methods for evaluating equilibrium isotope effects: applications to clumped and position-specific stable isotope studies</i>
12:30-12:50	Contributed lecture: Yuval Shagam – Weizmann Institute of Science <i>Observation of the isotope effect in sub-kelvin reactions</i>
12:50-13:10	Contributed lecture: Debasish Mandal – Hebrew University <i>Kinetic Isotope Effect is a Sensitive Probe of Spin State Reactivity in C-H activation of non-heme Fe(IV)O oxidants with Hydrocarbon</i>
13:10-13:30	Contributed lecture: Josef Yellin – Hebrew University <i>Isotope effects in atomic structure</i>
13:30-15:00	Lunch
15:30-17:50	Afternoon session: Isotopes in marine sciences and hydrology (Chair: Anton Eisenhauer – Helmholtz Centre for Ocean Research Kiel)
15:30-16:00	Keynote lecture: Mark Altabet – University of Massachusetts <i>Deciphering the Ocean's Nitrogen Cycle using Stable Isotope Ratios</i>
16:00-16:30	Keynote lecture: Orit Sivan – Ben-Gurion University <i>The use of multi-isotope measurements to study anaerobic methane oxidation (AOM) process in marine and freshwater sediments</i>
16:30-16:50	Contributed lecture: Alan Matthews – Hebrew University Contrasting anoxic conditions in Eastern

	<i>Mediterranean Sapropels S1 and S5 revealed by Fe and Mo isotopes and chemical element proxies</i>
16:50-17:10	Contributed lecture: Jegathambal P – Karunya University <i>Environmental Isotopes and Hydrogeochemical Parameters as Indicators of Groundwater Recharge in Semiarid Regions</i>
17:10-17:30	Contributed lecture: Noa Fruchter – Hebrew University <i>Lake Kinneret as a natural laboratory to study the carbonate system using $^{88}\text{Sr}/^{86}\text{Sr}$ fractionation in authigenic inorganic calcite</i>
17:30-17:50	Contributed lecture: Alexey Kamyshny – Ben-Gurion University <i>Sulfur cycling in a freshwater lake with sub-millimolar sulfate concentrations: constraints from sulfur isotope composition of hydrogen sulfide, elemental sulfur, and sulfate</i>
17:50-18:00	Closing remarks
18:30-19:30	Dinner
20:00-22:00	Mix time
Friday, June 26	
09:00-11:00	Excursion – The Museum of Islamic Art