

Monday July 1st 2024

(13:30-16:00) **TOFWERK and Teledyne Photon Machines Joint LA Workshop @UGent-A&MS lab**

Tuesday July 2nd 2024

(13:30-15:00) **Teledyne Photon Machines and Nu Instruments Training Course @UGent-A&MS lab**

(16:00-17:00) **Official start on-site registration**

(17:00-17:30) **Opening ceremony by Prof. dr. Frank Vanhaecke and Dr. ir. Thibaut Van Acker:** Welcome to EWLA2024 in Ghent, Belgium

(17:30-18:00) **OL - Opening lecture by Prof. dr. Detlef Günther:** Revisiting our understanding of laser ablation-ICPMS

(18:00-18:30) **IL - Invited lecture by Prof. dr. Takafumi Hirata:** Laser ablation for molecular analysis

(18:30-20:00) **Ice Breaker reception**

Wednesday July 3rd 2024

(08:30-09:00) **KL1 - Keynote lecture 1 by Dr. Martin Šala:** Beyond conventional calibration: advancing LA-ICP-MS methodologies

(09:00-10:00) Session 1 chaired by Dr. Martin Šala – Fundamentals laser-matter interaction:

- (09:00-09:15) **OT1 - Wolfgang Müller** - Why go shorter? Design and Rationale of a Dual-Wavelength (157 & 193 nm) Cryo-LA-ICP-MS/MS System
- (09:15-09:30) **OT2 - Tobias Erhardt** - Initial Performance of a Dual-Wavelength (157 & 193 nm) Cryo-LA-ICP-MS/MS System
- (09:30-09:45) **OT3 - Rachael Rhodes** - Ablating the transparent: testing femtosecond laser ablation ICP-MS in the UV absorption dead zone of ice
- (09:45-10:00) **OT4 - Hideki Iwano** - Laser-induced heating onto solid materials through annealing of fossil fission tracks

(10:00-10:30) **Coffee break sponsored by Normec Servaco**

(10:30-12:00) Session 2 chaired by Prof. dr. Detlef Günther – Fundamentals particle formation, transport phenomena & standardization 1:

- (10:30-10:45) **OT5 - Dylan Käser** - Ablation effects in nitrogen for LA-N2-MICAP-MS
- (10:45-11:00) **OT6 - Kanoko Kurihara** - Analysis of Mechanism for Generation of Ions and Particles via Laser Ablation in Liquid (LAL) Technique using ICP mass spectrometry
- (11:00-11:15) **OT7 - Jay Thompson** - False signals: quantification issues of trace Si in non-silicate minerals by LA-ICP-MS

- (11:15-11:30) **OT8** - **Laura Kronlachner** - A novel sample preparation and calibration approach for nanoparticle analysis using laser ablation single particle-ICP MS
- (11:30-11:45) **OT9** - **Ana Lores Padín** - Advancing Quantitative Mapping of Biogenic Carbonate Matrices with LA-ICP-TOF-MS
- (11:45-12:00) **OT10** - **Mathias Schannor** - LA-MC-ICP-MS analysis of Cu isotopes in biological material

(12:00-13:30) **Lunch break:**

- (12:40-13:20) **Lunch break seminar 1** by TOFWERK (Oehoe main lecture room)

(13:30-14:00) **KL2** - **Keynote lecture 2 by Prof. dr. Gunda Koellensperger:** LA-ICP-TOF-MS - the essential tool for spatial single cell metallomics

(14:00-15:00) **Session 3 chaired by Prof. dr. Gunda Koellensperger – Applications in Biology, Medicine & Life Sciences (part A):**

- (14:00-14:15) **OT11** - **Martin Schaier** - Unraveling cobalt skin permeation and cellular interactions: Novel insights from LA-ICP-TOFMS imaging
- (14:15-14:30) **OT12** - **Alexander P. Morrell** - Can metallomic imaging of TNBC tissues help predict the NACT response?
- (14:30-14:45) **OT13** - **Heike Traub** - Laser ablation ICP-ToF-MS to investigate the interaction of MRI contrast agents the extracellular matrix components
- (14:45-15:00) **OT14** - **Michaela Kuchynka** - Nano-savers for Ischemic stroke? Investigation using a combination of CT and LA-ICP-MS

(15:00-16:10) **Poster session 1 + coffee break sponsored by Glass Expansion:**

- **PP1** - **Marcel Guillong** - Investigating Ablation Rates in Geological Materials: A Comparison of UV fs and ns Laser Ablation
- **PP2** - **Antea Hrepić** - Empirical Insights into Crater Geometry: Modeling for Enhanced Laser Ablation Inductively Coupled Plasma Mass Spectrometry Analysis
- **PP3** - **Ciprian Stremtan** - Laser Ablation – Cavity Ringdown Spectrometry – A novel method for in situ measurement of light stable isotope ratios
- **PP4** - **Mubasher Ali** - Continuous Wave Laser Ablation for Tailored Titanium Nanoparticle Synthesis: Temperature and Liquid Medium Effects
- **PP5** - **Leon Geiger** - Laser-Induced Crystallization: Enhanced predictability of urea crystallization by optimized laser repetition rate
- **PP6** - **Guillaume Girard** - Elemental fractionation in LA-ICP-MS quantified
- **PP7** - **Tom Van Helden** - Dual-phase formation in LA-ICP-MS of biological tissue
- **PP8** - **Sarah Gilbert** - Sculpting the ablation plume - using QuadLock to enhance sensitivity for isotopic analyses
- **PP9** - **Phil Shaw** - What's in a pixel?
- **PP10** - **Grant Craig** - LA-ICP-MS imaging using high-ohmic amplifiers with the Neoma MC-ICP-MS

- **PP11 - Helmut Ernstberger** - Technological prerequisites for high quality isotope ratio measurements using quadrupole ICP-MS
- **PP12 - Julien Leger** - The more, the better: new practices for U/Pb data reduction based on multiple reference material standardization
- **PP13 - Nathan Westwood** - Characterisation of nano-pellets as potential reference materials for Pb-Pb isotope analysis in ferromanganese crusts
- **PP14 - Nicholas West** - Real-time Measurement Of Mass Filter Position For Aligned LA-ICP-MS
- **PP15 - Ashley Norris** - Ultra-Trace-Element Imaging Using Aligned LA-ICP-MS With a Magnetic-Sector Single-Collector Mass Spectrometer
- **PP16 - Lukas Schlatt** - What is dynamic range in LA-ICP-MS and how can it be extended?
- **PP17 - Matthew Horstwood** - TACtool: A Targeting and Co-ordination tool for LA-ICP-MS and other spatially resolved methods
- **PP18 - Ethan Tonks** - Automated Selection of Sites for Chemical Microanalysis Using Image Segmentation
- **PP19 - Stijn J.M. Van Malderen** - Hardware and software integration improvements in LA-ICP-TOF-MS for acquisition rates of 1000 resolved multichannel pixels per second
- **PP20 - Ana Justo Vega** - Titanium imaging in fish tissues exposed to titanium dioxide nanoparticles by quantitative laser ablation-inductively coupled plasma-mass spectrometry
- **PP21 - Jhanis Gonzalez** - High precision and spatial resolution chemical interrogation of planetary materials using fs-LA/LIBS in tandem with multi-collector ICP-MS
- **PP22 - C. Derrick Quarles Jr.** - Exploring the benefits of combining LIBS and LA-ICPMS for geological based applications
- **PP23 - Max Frank** - Tracing thin water layers from the leaf surface into the plant: how the laser burns the doubt
- **PP24 - Noémie Thiébaud** - Efficiency of foliar fertilization assessed by LA-ICP-MS
- **PP25 - Daniel Pergament Persson** - Suberin restricts potassium leakage from plant roots
- **PP26 - Lena Hiddeßen** - Quantitative bioimaging of boron-based contrast agents by means of LA-ICP-MS
- **PP27 - Martin Kutzschbach** - LA-ICP-MS/MS-based Rb-Sr isotope mapping for geochronology
- **PP28 - Paula Menero-Valdés** - Determination of target metals and proteins associated with neurodegeneration in tissue sections of a mouse model using LA-ICP-MS: Study of Zn supplementation
- **PP29 - Olga Minaeva** - Imaging of environmental toxic metals distribution in the brain by LA-ICP-MS
- **PP30 - Marie Novotná** - High-resolution LA-ICP-MS imaging of Pt-derivates in single cell and tumour tissue
- **PP31 - Michaela Vašínová Galiová** - High-resolution LA-ICP-MS and tracing Ru-based metallocene in tumour cells
- **PP32 - Lingna Zheng** - Mass spectrometry imaging of renal alternations in mice with cisplatin-induced acute kidney injury treated with CeO₂ nanoparticle
- **PP33 - Hunter Andrews** - Investigating the Use of Simultaneous Laser-Induced Breakdown Spectroscopy/Laser Ablation-Inductively Coupled Plasma-Time-of-Flight-Mass Spectrometry for the Analysis of Biological Materials
- **PP34 - Cinzia Chiurlia** - Platinum nanoparticles enhance LA-ICP-MS signal for trace element detection in serum spots
- **PP35 - Alex Griffiths** - Metallomic imaging of microbial nutritional immunity
- **PP36 - Keith MacRenaris** - LA-ICP-TOF-MS Imaging in Reproductive Biology: Elemental Changes as a Marker for Fibrosis and Infertility in AIRE Deficient Male Mice

(16:10-16:30) **UT1 - Upcoming talent award presentation 1 by Kristina Mervič:** Correcting Ablated Mass Differences in 2D LA-ICP-MS Mapping through Ablation Volume-Assisted Calibration

(16:30-17:00) Session 4 chaired by Kristina Mervič – Applications in Biology, Medicine & Life Sciences (part B):

- (16:30-16:45) **OT15 - Johannes Schmeinck** - Laser ablation-atmospheric pressure chemical ionization-time of flight-mass spectrometry for molecular imaging
- (16:45-17:00) **OT16 - Meng Wang** - Elemental and molecular Imaging of the boron drug BPA in the tissue sections of tumor bearing mice using LA-ICP-MS and DESI-MS

(18:00-19:00) **Boat trip**

(19:00-23:00) **Belgian evening in Saint-Peter's Abbey**

Thursday July 4th 2024

(08:30-09:00) **KL3 - Keynote lecture 3 by Dr. Alicia Cruz-Urbe:** Prospects and challenges for in situ beta decay geochronology by MC-ICP-MS/MS

(09:00-10:00) Session 5 chaired by Dr. Alicia Cruz-Urbe – Fundamentals isotopic analysis:

- (09:00-09:15) **OT17 - Michael J. Pribil** - Multiple Sulfur Isotope Ratios by LA MC-ICP-MS and LA MC-ICP-MS/MS: Unraveling Minerals at the Micron Scale
- (09:15-09:30) **OT18 - Enrico Cannò** - In-situ B and Ti isotopes in amphibole: a new potential geochemical tool
- (09:30-09:45) **OT19 - Stijn Glorie** - In situ molybdenite and shale Re-Os geochronology: a comparison of reaction gasses
- (09:45-10:00) **OT20 - Fabien Pointurier** - Implementation of laser ablation – ICPMS coupling for isotopic analysis of uranium micro-particles

(10:00-10:30) **Coffee break**

(10:30-12:00) Session 6 chaired by Prof. dr. Christophe Pécheyran – Fundamentals qualitative and quantitative elemental and isotopic mapping:

- (10:30-10:45) **OT21 - Nathan T. Westwood** - The application of LA-ICP-MC-MS for quantified, high spatial resolution imaging of Pb-Pb isotope ratios in ferromanganese crusts
- (10:45-11:00) **OT22 - Dany Savard** - Advances on 3D-mapping by fs-LA-ICP-TOF-MS: quality assessment for the analysis of melt inclusions in Hawaiian olivine
- (11:00-11:15) **OT23 - Yoshiaki Kon** - Mineral liberation analysis using LA-ICPMS

- (11:15-11:30) **OT24 - Iker Basabe Mendizabal** - Towards 1,000 pixels/s acquisition rate for elemental mapping via LA-ICP-MS
- (11:30-11:45) **OT25 - Kharmen Billimoria** - Improving calibration standards for LA-ICP-MS bioimaging
- (11:45-12:00) **OT26 - Pascal Becker** - Fossilization of Leaves for Quantitative Bio-Imaging using LA-ICP-TOFMS

(12:00-13:30) **Lunch break:**

- (12:40-13:20) **Lunch break seminar 2** by Elemental Scientific Lasers (lecture room A)
- (12:40-13:20) **Lunch break seminar 3** by Teledyne Photon Machines (lecture room B)

(13:30-14:00) **KL4 - Keynote lecture 4 by Prof. dr. Jorge Pisonero:** Pros and Cons of LA-ICP-MS for fast, sensitive and high-spatially resolved elemental mapping of challenging samples

(14:00-15:00) **Session 7 chaired by Prof. dr. Jorge Pisonero – Applications in Geology, Archaeology, Earth & Planetary Sciences (part A)**

- (14:00-14:15) **OT27 - Andreas Riedo** - Towards the flight design and concept of operations of the CLPS- LIMS systems for NASAs Artemis program
- (14:15-14:30) **OT28 - Piers Larkman** - Effective data collection for large area mapping: insights from polar ice cores
- (14:30-14:45) **OT29 - Ivan Belousov** - Deconvolution of mixed LA ICPMS signals and quantification of trace element compositions of microinclusions in minerals
- (14:45-15:00) **OT30 - Markus Wälle** - Boron isotope ratio analysis of Cu-bearing tourmaline by LA-ICP-TOF-MS for origin determination

(15:00-16:10) **Poster session 2 + coffee break:**

- **PP37 - George Cooper** - Femtosecond Laser Ablation for High-Speed Elemental Mapping
- **PP38 - Elisabeth Foels** - How to assess limits of detection for single-cell elemental bioimaging by LA-ICP-MS
- **PP39 - Daniel A. Frick** - Pseudo-Isotope Ratios by LA-ICP-OES for Sea Surface Temperature Reconstruction
- **PP40 - David Loibnegger** - LA-ICP-TOFMS imaging reveals Pt(IV)-drug bioaccumulation in tumor tissue at the single-cell level
- **PP41 - Hugo Louet** - Development of LA-ICP-MS analysis for quantitative elemental mapping in dendrochemistry
- **PP42 - Jeffrey Oalman** - Comparing methods for quantifying elemental images obtained by quadrupole and time-of-flight LA-ICP-MS
- **PP43 - Stefan Wagner** - In situ mapping of elemental dissolution at ultra-trace levels during aqueous corrosion of Al alloys
- **PP44 - Thorsten A. Markmann** - Multi-phase quantitative compositional mapping by LA-ICP-MS: analytical approach and data reduction protocol implemented in XMapTools
- **PP45 - Kate Souders** - Evaluation of matrix effects on LA-MC-ICP-MS Sr isotopic analysis

- **PP46 - Ciprian Stremtan** - In-situ, simultaneous measurement of oxygen and carbon isotope ratios via LA IRMS – study case on inorganic carbonates
- **PP47 - Adrien Vezinet** - Concurrent determination of Sr-isotope signature and trace elements contents of depleted glasses via laser ablation split stream: Pros and Cons Of Different Approaches
- **PP48 - Herbert Siegmund** - Analysis of ultra-fast transient signals by LA-MC-ICPMS – overcoming instrumental limitations
- **PP49 - Claire Aupart** - Trace elements in quartz: a tool for sediment provenance
- **PP50 - Fatima Zohra Bouhdayad** - Late Neogene ENSO variability in the SE Pacific recorded in bivalve shells through Laser Ablation ICP-MS
- **PP51 - Stepan Chernozhkin** - Probing the evolution of primitive achondrite parent bodies: insights from LA-ICP-MS analysis of silicate minerals
- **PP52 - Helmut Ernstberger** - Automated High Throughput Analysis of Rare Earth Elements in Large Batches of Mining Discovery Samples by LA-ICP-MS
- **PP53 - Isabelle Genot** - Multi-element analyses of silicate glasses using a femtosecond laser ablation system coupled to an ICP-MS/MS
- **PP54 - Pamela Gutiérrez** - S isotopic analyses of S-bearing compounds using a femtosecond laser ablation system coupled to an ICP-MS/MS
- **PP55 - Youn-Joong Jeong** - Imaging of Geological sample by fs LA-ICP-MS with ARIS
- **PP56 - Nathan Miller** - Utility of LA-ICP-MS methods for reconstructing hydroclimate from stalagmite and cave monitoring archives
- **PP57 - Ségolène Rabin** - High-resolution in situ Fe isotope measurements of Belgian micrometeorites by femtosecond laser ablation MC-ICP-MS
- **PP58 - Ciprian Stremtan** - Laser ablation IRMS analysis of $\delta^{13}\text{C}$ in creep affected Picea abies from Făgăraș Mountains, Romania
- **PP59 - Lorenzo Tavazzani** - Synthesising homogeneous calcium carbonate reference materials for in situ determination of U–Pb and Sr isotopes
- **PP60 - Massimo Tiepolo** - Historical trends of metal pollution in the metropolitan area of Milano, Italy: a combined dendro-chemical, dendro-magnetic and dendro-XRD approach
- **PP61 - Maarten Van Brussel** - Advancements in Isotope Analysis for Geochronology: Integrating MS/MS and Laser Ablation
- **PP62 - Róbert Arató** - Graphite LIBS analysis: Opportunities for elemental mapping and multivariate classification
- **PP63 - Kengo Ito** - Ilmenite age determination using LA-ICP-MS technique
- **PP64 - Remi Dallmayr** - New cryogenic ablation cell technology for high sample throughput impurity mapping in ice-cores with LA-ICP-MS
- **PP65 - Thomas Delbey** - SelfSeal technology-based open-cell laser ablation system for trace elements analysis of full-size archaeological artefacts: application on historical Chinese enamelled copperware
- **PP66 - Ashlea Wainwright** - Comparing interference removal tools for in situ analysis of $^{87}\text{Sr}/^{86}\text{Sr}$ in bioapatite
- **PP67 - C. Derrick Quarles Jr.** - Understanding the Elemental Composition of SEI and CEI Layers in Li-Ion Batteries
- **PP68 - Nicole Gilon** - Determination of trace elements in precious alloys using time-resolved and spectra acquisition in LA-ICP-MS/MS
- **PP69 - Alban Moradell-Casellas** - Fast analysis of trace elements and lithium isotopy by LA-(MC)-ICP-MS for the traceability of lithium in the battery supply chain
- **PP70 - Petr Rudolf** - Development of the LA-ICP-MS method for liquid analysis
- **PP71 - Agnieszka Stokłosa** - LA-ICP-MS Calibration Strategy to Investigate the Ion Transport in Concrete

(16:10-16:30) **UT2 - Upcoming talent award presentation 2 by Dr. Sota Niki:** Online multiple-isotope analysis of individual nanoparticles generated through femtosecond laser ablation

(16:30-17:00) Session 8 chaired by Dr. Sota Niki – Applications in Geology, Archaeology, Earth & Planetary Sciences (part B):

- (16:30-16:45) **OT31 - Pim Kaskes** - Blasting dinosaurs in Brussels: new μ XRF and LA-ICP-MS setup to unravel the origin of fossil bonebeds
- (16:45-17:00) **OT32 - Robert Anczkiewicz** - Deducing Upper Paleolithic woolly mammoth mobility patterns with high spatial resolution trace element, O and Sr isotope analyses

Friday July 5th 2024

(09:00-9:30) **KL5 - Keynote lecture 5 by Dr. Vassilia Zorba:** Advancing Ultrafast Laser Ablation Sampling: From Femtosecond Filamentation to GHz Bursts of Ultrafast Laser Pulses.

(09:30-10:00) Session 9 chaired by Dr. Vassilia Zorba – Fundamentals and applications of tandem multi-sensor techniques:

- (09:30-09:45) **OT33 - Jakob Willner** - Acquisition parameter optimization for single pulse resolved simultaneous LA-Q-ICP-MS multielement analysis
- (09:45-10:00) **OT34 - Benjamin T. Manard** - Utilization of Laser-Based Sampling for High-Throughput Particle Analysis

(10:00-10:30) **Coffee break**

(10:30-12:00) Session 10 chaired by Prof. dr. Frank Vanhaecke – Fundamentals data processing, standardization 2 and applications in Material & Industrial Sciences:

- (10:30-10:45) **OT35 - Salome Gruchola** - Exploring On-Board Data Reduction Techniques for Improved Space Mission Returns
- (10:45-11:00) **OT36 - Beatriz Fernández** - Quantitative protein bioimaging in individual cells by LA-ICP-MS; labelling with ruthenium red and metal nanoparticles
- (11:00-11:15) **OT37 - Claude Molitor** - Introducing a general cell membrane marker for bioimaging with LA-ICP-(TOF)MS
- (11:15-11:30) **OT38 - Lena Michaliszyn** - Improved Quantification of Solid Samples using LA-ICP-MS with Standard Addition and Isotope Dilution: A Promising New Technique
- (11:30-11:45) **OT39 - Yuan Shang** - Application of in-situ Laser Ablation ICP-MS analysis in developing geochemical fingerprints to trace cobalt and nickel along the battery value chain
- (11:45-12:00) **OT40 - Christoph Walkner** - Two approaches for elucidating the origin of non-metallic inclusions in steels using LA-ICP-MS

(12:00-12:30) Closing and award ceremony

(12:30-13:30) Farewell lunch

