

# Scientific Programme

1<sup>st</sup> International Plant Spectroscopy Conference

*Chemical Biological Centre (KBC), Umeå University, Sweden*

## AUGUST 29, TUESDAY

08:30-09:00 *Registration and coffee*

09:00-09:20 **András Gorzsás** (*Umeå University, Sweden*) - Opening notes

### *Session I – Vibrational Spectroscopy*

09:20-10:00 **Janina Kneipp** (*Humboldt-Universität zu Berlin, Germany*) - Raman scattering and multimodal multiphoton microscopy for the characterization and identification of plant tissues

10:00-10:40 **Hartwig Schulz** (*Julius Kühn-Institut, Germany*) - Analysis of plant raw materials and extracts applying various vibrational spectroscopy techniques - possibilities and limitations

10:40–11:10 *Coffee break*

11:10-11:30 **Jessica Huss** (*Max Planck Institute of Colloids and Interfaces, Germany*) - Plants facing fire: Insights into Banksia seed pods by using in situ Raman and FT-IR spectroscopy

11:30-11:50 **Martin Felhofer** (*University of Natural Resources and Life Sciences, Austria*) - Epithelium defense mechanism in conifers: Current challenges and methods to unravel the native state of extractives

11:50-12:10 **Batirtze Prats-Mateu** (*University of Natural Resources and Life Sciences, Austria*) - Laser induced changes of phenolic components during Raman imaging of plant cell walls

12:10-12:30 **Peter Bock** (*University of Natural Resources and Life Sciences, Austria*) - Why one laser is not enough – a case study on cinnamaldehydes and the implications on Raman spectroscopy of plant material

12:30-13:30 *Lunch*

13:30-13:50 **Notburga Gierlinger** (*University of Natural Resources and Life Sciences, Austria*) - Unravelling hierarchical microstructure and chemical composition of hazelnut (*C. avellana*) shells

13:50-14:10 **Boris Zimmermann** (*Norwegian University of Life Sciences, Norway*) – Vibrational spectroscopy of Pollen

14:10-14:30 **Diana Carolina Albán Reyes** (*Umeå University, Sweden*) - Analysing the mercerisation of dissolving cellulose pulp by Raman spectroscopy and multivariate data analysis

14:30-14:50 **Lennart Salmén** (*RISE/Bioeconomy, Sweden*) - Dynamic FTIR for assessing lignin interaction in wood

14:50-15:20 *Coffee break*

### *Session II – Autofluorescence Based Techniques*

15:20-16:00 **Lloyd Donaldson** (*Scion Research, New Zealand*) - Auto-fluorescence based techniques in plant sciences

16:00-16:20 **Gabriel Paës** (*FARE laboratory, INRA, University of Reims Champagne-Ardenne, France*) - Fluorescence lifetime imaging of plant cell wall

16:20-16:40 **Fabienne Guillon** (*INRA Nantes, France*) - Synchrotron time Lapse imaging of lignocellulosic biomass hydrolysis: enzyme autofluorescence and infrared microspectroscopy of cell walls modifications

16:40-17:00 **Clémence Simon** (*University of Lille, France*) - Dual labeling by chemical reporters allows visualization of lignification dynamics in plants

17:00 – 23:00 *Dinner (Skeppsvik Herrgård)*

## *AUGUST 30, WEDNESDAY*

### *Session III - Other Techniques*

09:00-09:40 **Frédéric Jamme** (*Synchrotron SOLEIL, France*) - Synchrotron Light for Spectral Imaging: Application to Plant Spectroscopy

09:40-10:20 **Hélène Rogniaux** (*INRA Nantes, France*) - Mass spectrometry imaging combined to in-situ enzymatic hydrolysis: a novel image of plant tissues

10:20-10:50 *Coffee break*

10:50-11:10 **Rivka Elbaum** (*RH Smith Institute for Plant Sciences and Genetics in Agriculture, Hebrew University of Jerusalem, Israel*) - Lignification of secondary cell wall characterized on a subcellular level: Implication to hygroscopic movement in the stork's bill's awn

11:10-11:30 **Muhammad Tariq Javed** (*Government College University, Pakistan; Stockholm University, Sweden*) - Potassium silicate maintains optimum cellular sodium and chloride homeostasis in wheat (*Triticum aestivum* L.) cultivars as monitored by dual-wavelength photometry

11:30-11:50 **Rozenn Le Hir** (*Institut Jean-Pierre Bourgin, INRA Versailles, France*) - The vascular tissues in *Arabidopsis thaliana* floral stem: High spatial resolution using synchrotron infrared, Raman and deep UV spectroscopy

11:50-12:10 **Victor Rodriguez Zancajo** (*Humboldt-Universität zu Berlin; BAM Federal Institute for Materials Research and Testing, Germany*) - Multimodal structural and functional analysis of sorghum tissues and sorghum biosilica

12:10-13:10 *Lunch*

*Session IV – Data Analysis*

13:10-13:50 **Anna de Juan** (*Universitat de Barcelona, Spain*) - Chemometrics for hyperspectral images of biological samples

13:50-14:10 **Sabrina Diehn** (*Humboldt-Universität zu Berlin; BAM Federal Institute for Materials Research and Testing, Germany*) - Multivariate analysis of Raman imaging data to study differences in plant organs

14:10-14:30 **Marie-Françoise Devaux** (*INRA Nantes, France*) - Autofluorescence variability in maize stems by multispectral image analysis of series of large images at the macroscopic scale

14:30-14:50 **Sara Piqueras** (*University of Copenhagen, Denmark*) - Understanding the formation of highly durable heartwood in Teak by use of Raman hyperspectral imaging and multivariate resolution techniques

14:50-15:00 **Andrés Gorzsás** (*Umeå University, Sweden*) – Closing notes

15:00-16:30 *Tour of the KBC Facilities (in groups)*

15:00-17:00 *Meetings with local researchers (individual schedules)*

