Course Information

ZELCOR

2nd edition

SUMMERSCHOOL

Course aim

This Summer School addresses the question of biorefinery wastes in the context of bioeconomy, with a focus on valorization of recalcitrant side streams. A panel of specialists in the biorefinery field will provide an up-to-date state-of-the-art overview based on the latest advances in terms of scientific knowledge, techno-economical developments and life cycle assessment methodologies.

Course design

The course will combine lectures, practical workshops, case studies, visits and poster presentations, providing ample opportunity for discussions and group activities.

Course topics

- Advances in technical lignin up-grading
- Methodologies
- Native structures and product design
- Lignocellulose and plant cell-wall

Dates & Venue

6-10 July *(optional visit to the Versailles castle on 11 July)*, amphitheatre, Versailles Campus, Centre INRAE Ile-de-France - Versailles-Grignon, Route de St-Cyr (RD 10), 78026 VERSAILLES Cedex

Registration & course fee

To register please visit **www.workshop.inrae.fr/zelcor-summer-school-2020**
Applicants will be informed of acceptance of their resgitration before 15 March 2020.
They will receive instructions for payment and further course details.

Course fee includes materials, coffee/tea during breaks, lunches, an excursion and 1 course dinner but does not cover accommodation. The course fee depends on the participant's affiliation.

Course fee

Industrial	€ **500**
Academics	€ **170**
ABIES PhD students	€ **100**
Optional: Visit to the castle	€ *20*

Free registration for IJBP members

Scientific committee

Stéphanie Baumberger, Matthieu Reymond
Hermann Höfte, Helen North
Institut Jean-Pierre Bourgin, INRAE, Versailles, France

Summer school coordination

Stéphanie Baumberger
Professor AgroParisTech
INRAE Centre de Versailles-Grignon
Route de St-Cyr, 78026 Versailles Cedex, France

Contact

+33 (0)130 83 37 78
stephanie.baumberger@inrae.fr

Zero waste biorefineries: value chain approach, methods and processes for lignin upgrading.

Jointly organized with Saclay Plant Sciences network of excellence

www.zelcor.eu

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BBI JU

Bio-based Industries Consortium

Horizon 2020
European Union Funding
for Research & Innovation

SUMMERSCHOOL

5 July: Arrival of the participants

Program 6 -10 July 2020

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Day 1 Advances in technical lignin up-grading *(lectures and work in groups)*

09:00 - 09:30 **Welcoming of participants**

Session 1 **09:30 - 10:00**

Introduction and presentation of the case studies *(production of a bio-based ingredient derived from lignin, for cosmetics, packaging, food or polymer synthesis)*

Session 2 **10:00 - 13:00**

Biological and chemical routes for integrated sustainable processes

10:00 - 10:45	Craig Faulds *(INRAE)*	The fungal frontier: is total microbial breakdown and modification of lignin a possibility?
11:15 - 12:00	Richard Gosselink *(WFBR)*	Fractionation and chemical depolymerization process for the production of functional intermediates from lignin
12:00 - 12:45	Grégory Chatel *(Université de Savoie)*	Potential of sonochemistry for the green chemistry of polyphenols

Session 3 **14:00 - 15:30**

Cross-sectorial approach for the development of new applications and markets

14:00 - 14:45	Fabio Apone *(Arterra)*	Screening for new bio-based ingredients for cosmetics
14:45 - 15:30	Thomas Lefevre *(Ynsect)*	Insect-based biorefinery

Session 4 **16:00 - 18:00**

Work in groups on the case studies

6 July

Day 2 Methodologies *(practical training and tutorial in groups)*

Session 1

Analytical techniques for lignocellulose characterization: general presentation of the analytical tools and practical training on one method applied to technical lignins (among NMR, HPSEC, thioacidolysis, IRTF)

Session 2

Methods for value chain sustainability assessment: general presentation and tutorial on techno-economic, environmental or safety assessment.

7 July

Day 3 Visit to Reims by bus

Visit to the biorefinery site of Pomacle | Lunch | Visit to INRAE facilities in groups | Gala dinner

8 July

Day 4 Native structures and product design *(lectures and work in groups)*

Session 1

Biomimicry, use of native assemblies, and eco-design of products

09:15 - 10:00	Herman Höfte *(INRAE)*	Plant cell-wall: modeling and biomimicry
10:00 - 10:45	Bernard Cathall *(INRAE Cathalla)*	Nanocellulose and nanocellulose/ hemicellulose assemblies
11:15 - 12:00	Monika Osterberg *(Aalto university)*	Production, modification and applications of spherical lignin nanoparticles
12:00 - 12:45	Sandra Domenek *(AgroParisTech)*	Multifunctional eco-designed films based on lignin

Session 2

Work in groups on the case study | Visit to the IJPB greenhouses in groups

9 July

Day 5 Lignocellulose and plant cell wall *(Joint program with SPS summer school on Plant cell wall)*

Session 1 **09:00 - 10:30**

Networks and Innovation

Presentation of Saclay Plant Sciences excellence network and some collaborative projects *(BBF, Grace, Zelcor)*

Session 2 **11:00 - 12:30**

Plant biomass: agronomic reality and value chains

11:00 - 11:45	Wout Boerjan *(Gent University)*	Biomass engineering and bioethanol production
11:45 - 12:30	Paolo Corvo *(Clariant)*	Cellulosic ethanol production: example of Clariant's technology

Session 3 **14:00 - 15:00**

14:00 - 15:00	Enrico Cozzoni *(Gradozero)*	Integrated flexible processing chain for lignin valorization into carbon-based materials: example of the Eucaliva project

Session 4 **15:00 - 16:00**

Presentation of the results from the case studies *(Zelcor summer school)*

Session 5 **16:00 - 16:30**

Concluding remarks and poster awards

(Optional) 11 July morning: visit to the castle

10 July