



Johan Gadolin  
Process Chemistry Centre

Advanced Courses at  
Johan Gadolin Process Chemistry Centre,  
Åbo Akademi University

# Modern Analytical Tools for Pulp and Paper

November 25-29, 2019  
Turku / Åbo

In cooperation with



and



Graduate School in Chemical Engineering

# Modern Analytical Tools for Pulp and Paper

This course will present recent analytical techniques for pulp and paper. It is a combined course for PhD students and researchers from industry and research institutes. For students, who want to earn 5 credits (ECTS) for the course, there will be lectures and workshops starting on Monday the 25<sup>th</sup> of November and ending at noon on Friday the 29<sup>th</sup> of November. We strongly recommend that students should have at least a basic knowledge of wood/biomass chemistry and analytical methods before registering.

For industry representatives, that want to learn about the top-of-the-art analytical tools but do not need credits, the course begins at Tuesday the 26<sup>th</sup> and ends at noon on Thursday the 28<sup>th</sup>.

## Course leaders:

Docent Chunlin Xu, Docent Anna Sundberg,  
Laboratory of Natural Materials Technology, research group of Wood and Paper Chemistry

## Contact information:

Docent Chunlin Xu  
Åbo Akademi  
Laboratory of Natural Materials Technology, research group of Wood and Paper Chemistry  
Porthansgatan 3, FIN-20500 Turku  
Chunlin.Xu@abo.fi

## Course venue:

Åbo Akademi University, Gadolinia, Porthaninkatu 3.

## Course fee:

- |   |      |
|---|------|
| -PhD students from GSCE and other Finnish Universities with JOO-agreement | Free |
| -PhD students from other countries  | 200€ |
| -Representatives from industry and research institutes                    | 500€ |
| -Others, please contact Docent Chunlin Xu                                 |      |

The course fee includes lectures, course material, coffee & tea during the breaks, and course get-together (on Tuesday evening).

## Registration:

- Representatives from industry and research institutes, register by *November 15<sup>th</sup>* by e-mail to [Chunlin.Xu@abo.fi](mailto:Chunlin.Xu@abo.fi)
- Students at Åbo Akademi register through Peppi and by sending an e-mail to [Chunlin.xu@abo.fi](mailto:Chunlin.xu@abo.fi)
- PhD students from Finnish universities with the JOO-agreement: Register to the course by *November 15<sup>th</sup>* by e-mail to [Chunlin.Xu@abo.fi](mailto:Chunlin.Xu@abo.fi) and by filling in the *electronic* JOO-application at [www.joopas.fi](http://www.joopas.fi) and then send the *signed and recommended* form to Chunlin Xu. If you come from a university that does not yet use the *electronic* JOO-application, fill in the application in *paper* form (can also be found at [www.joopas.fi](http://www.joopas.fi)), get your own university to recommend you, and then send the *signed, recommended* form to Chunlin Xu.
- Others, register by *November 15<sup>th</sup>* by e-mail to [Chunlin.Xu@abo.fi](mailto:Chunlin.Xu@abo.fi)

## Accommodation:

Moderate-price hotels at walking distance are:

Hotel Hamburger Börs, <https://www.sokoshotels.fi/en/turku/sokos-hotel-hamburger-bors>

Centro Hotel, <http://www.centrohotel.com/en/>

Hotel Helmi, <http://www.hotellihelmi.fi/en>

Omena Hotel, <http://www.omenahotels.com/our-hotels/finland/turku/>

Scandic Julia, [www.scandichotels.com/Hotels/Finland/Turku/Scandic-Julia/](http://www.scandichotels.com/Hotels/Finland/Turku/Scandic-Julia/)

Scandic Plaza, [www.scandichotels.com/Hotels/Finland/Turku/Scandic-Plaza-Turku/](http://www.scandichotels.com/Hotels/Finland/Turku/Scandic-Plaza-Turku/)

## Links:

- Homepage of the Laboratory of Wood and Paper Chemistry:  
<http://www.abo.fi/fakultet/traochpapperskemi>
- Information about Turku/Åbo can be found at <http://www.turku.fi/> and <http://www.visitturku.fi/>

Questions? Do not hesitate to contact Docent **Chunlin Xu**! See you in November!

## Confirmed speakers:

- Docent Chunlin Xu
- Docent Anna Sundberg
- Docent Andrey Pranovich
- Jonas Konn, Kemira
- Lari Vähäsalo, CH Bioforce
- ...

## Preliminary Lecture Topics

- Sampling, pre-treatment and extraction of different samples (wood, pulp, paper, waters, deposits)
- Analysis methods for industry from a chemical company's point of view
- Lipophilic and hydrophilic extractives – a mess without appropriate analyses
- Polymerized extractives
- Flow cytometry
- Analysis of DisCo in papermaking
- SPME – A versatile technique for methanol, volatile terpenes, odorous compounds, cognac aroma etc
- Fiber properties -standard and advanced analysis of fibers, pulp and paper
- ICP-OES, ICP-MS and microwave digestion in elemental analysis
- Analysis of cellulose, hemicelluloses and pectins
- Lignin analysis and some microanalytical techniques
- Pyrolysis and thermal chemolysis combined with GC and GC-MS
- NMR spectroscopy