EACH Winter School 2018

Lyon – Valpré
22 – 26 January 2018

Where are we?
### Agenda

<table>
<thead>
<tr>
<th>Time</th>
<th>Day 1: 18/12/17</th>
<th>Conferences committee</th>
<th>Day 2: 19/12/17</th>
<th>Conferences committee</th>
<th>Day 3: 20/12/17</th>
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<th>Day 4: 21/12/17</th>
<th>Day 5: 22/12/17</th>
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<tbody>
<tr>
<td>9:00-10:00</td>
<td>Breakfast</td>
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<td>10:00-11:00</td>
<td>Lecture, Abdelamid Errachid (ISA), Smart sensors</td>
<td>Break</td>
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<td>11:00-12:00</td>
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<td>13:00-15:00</td>
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<td>15:00-18:00</td>
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<td>18:00-20:00</td>
<td>Dinner</td>
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### Lectures

- Abdelamid Errachid (ISA), Smart sensors
- Guido Pintacuda (ISA), Sami Janin (ISA) and Anne Lesage (ISA), NMR
- Noémie Caillol (AxelOne), Industrial analysis
- Hervé Thiébaud (Arkema), Nicolas Roques (Servier), Serge Henrot (Solvay), Analysis and Industries
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2d year student’s presentation

Monday 22 January 2018
2d year student’s presentation

- The way of life in your 2d year university
- The work load
- The master thesis topics
- …

A sample trip in Lyon

Monday 22 January 2018
**A sample trip in Lyon**

- A funny trip for your first visit of Lyon

- Bring water samples from Lyon order to perform measurements on Tuesday

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**Towards on-line measurement and regulation**

Sophie Cavassila (UCBL), Anne-Laure Deman-Him (UCBL), DIY analytical instrument.

**Tuesday - 23 January 2018**
How can we address instrumentation design?

- Low cost electronic devices
  - Based on Arduino motherboards
- Full set of sensors
- Full set of actuators
- Easy to program
  - Enhanced simulation tools: Tinkercad
  - Arduino IDE (Integrated Development Environment)

What kind of project can be designed?

- Sorting machine
  https://www.youtube.com/watch?v=H7HTQai7Wwg
What kind of project can be designed?

- Automated House Plant Waterer

Is this difficult?

- Definition of the specifications
- Basic knowledge on electronics, computer science
- Useful simulation software for non-specialists
- Available numerical libraries to implement sensors and actuators

easy programming for beginners

https://www.tinkercad.com
Why do we propose this topic during WS?

- More and more personal devices
- More and more connected instruments
- More and more data recorded
- Can suffer from a lack of reliability
- Better knowledge of measurement principle
- Link to uncertainty measurement

Project topics in relation to chemical process

- Temperature control and regulation
- Humidity control and regulation
- pH or chlorine regulation in swimming pool
- Turbidimetry in water treatment plant
- Spectrophotometric measurements
- Automatic titration device
- Other topic....
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Student interview

Tuesday - 23 January 2018

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Student interview

• You
• Your project
• Your study track preferences

• Arguments
• Exchange
• Kindness
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One day in NMR

Wednesday 24 January 2018

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Visit of Very High Fields NMR center
Student presentations of team work

Feedback

Thursday 25 January 2018

- 20 minutes per group
- Presentation
- Discussion
- Convince people to finance your project!
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Friday 26 January 2018

Departure 10:00 am to the airport

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Enjoy your winter school!
Orientering in Lyon

- **The objectives**: To collect water in 5 different locations in Lyon (3 of them are specified, chose the others). You will analyse these samples as part of your studying during the Winter School.
- **Equipment**: Sampling bottles, Map of Lyon, Camera, 1 day ticket
- **Rules**: Each team has a specific itinerary to follow to reach all the collection points. Respect the order of your itinerary. Take pictures!
Take the D line direction Gare de Venissieux

Groupe A

1 Passerelle Saint Vincent
2 Place de l’opéra
3 Parc de la tête d’or
4 Berges du Rhône
5 Fourvière

1 Passerelle Saint Vincent 3 Parc de la tête d’or
2 Place de l’opéra 4 Berges du Rhône
5 Fourvière

ONLYLYON
At each of the 5 points...

- Record the time on the table at the bottom of your map
- Take a photo of your group (altogether) showing the location
- Remember to identify your sample with the location name and your group name
- Along the way, between the different locations, you need to take pictures to document your afternoon. Have fun and be creative.

Try to be back

- You need to return to Valpré by 7:00pm. On arrival, check in. Your arrival time will be logged and your pictures checked.

- Emergency Jérôme Randon +33 (0)682991448

- The first team to return within the rules will be awarded 10 points, then the 2nd 8 points, 3rd 7 points.
**Bonus points opportunity (2 points each):**

- Picture of your group with the ONLYLYON structure
- Picture of your group in a roman area
- Picture of your group within a traboule
- Picture of your group in front of painted walls (2 point per building)
- Picture of yourselves with a giraffe
- Picture of a statue with at least one horse

**Reporting during the winter school**

- Be prepared to be able to provide explanations and interesting facts about your photos.

- For Thursday 25th, you will prepare a slide show.

- The best one will be awarded a prize.
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<tr>
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<th>Group</th>
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