Content

- Organization
- List of experiments
- Experiment execution
- Controlled area rules
- Schedule
- Course evaluation
- A few advices for your reports
Organisation

Tuesdays or Wednesdays
8:15-12:00

13 experiments

4 groups of 2 or 3 per session
Organisation

Wednesdays
8:15-12:00

Each week, one group, one experiment

13 experiments

Oral exam on last week

6 groups of 2 or 3

Groups merged on CROCUS
Experiments

1. Detection of α particles
2. Detection of β particles
3. Detection of γ radiation
4. γ attenuation
5. Detection of neutrons
6. Scintillation detectors
7. Monte Carlo simulation
8. Approach-to-critical
9. Neutron noise
10. Neutron flux & reactor power
11. Stable periods
12. ⁶⁰Co coincidence
13. Radiation protection

EXAM
Experiment execution

Before starting
- At home: Reading theory and description
- Assistant introducing the experiment

During the experiment
- After its introduction, starting the experiment
- Collecting data, and performing analysis
- Discussing the results with the assistant

After finishing
- Cleaning up the working area
- At home: Writing the report
Controlled area

- Masks mandatory and provided
- Access requires CAMIPRO badge
- One dosimeter per group at the entrance
- Dose to be recorded in logbook at the end; course responsible to be informed if > 1μSv
- Jackets and bags in the locker room
- No eating or drinking inside
- Inform course responsible for temporary exit

Radioprotection rules are available on Moodle
# Group structure

<table>
<thead>
<tr>
<th>Group</th>
<th>Students</th>
<th>First experiment</th>
</tr>
</thead>
</table>
| A     | Rimoldi Emanuele  
Wälti Eric Lee  
Borkowicz Martyna Maria  
*(Soury François-Henri)* | 1                |
| B     | Bellucci Alessandro  
De Martino Flavio Giovanni  
Garces Pauline          | 2                |
| C     | Chatwin Harry Peter  
Blain Vadim Mathieu  
Alciati Marco           | 3                |
| D     | Ronchi Giovanni  
Habri Younes  
Evraert Paul-Armand Serge | 4                |
| E     | Torrente Bishal  
Reibel Mathieu Philippe Théo  
Swiatkowska Julia Janina | 5                |
| F     | Monlon Andry Guillaume Jean-Marie  
Lobresco Francesco  
*(Baudier Sébastien)*    | 13               |
## Preliminary schedule

### Reactor experiments

<table>
<thead>
<tr>
<th>Group</th>
<th>08.11</th>
<th>15.11</th>
<th>22.11</th>
<th>29.11</th>
<th>06.12</th>
<th>13.12</th>
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### WELCOME DAY / Radiation and reactor experiments

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<th>23.09</th>
<th>30.09</th>
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<th>20.10</th>
<th>07.11</th>
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</table>
Course evaluation

- **Criterion I: Score obtained for written report**
  - Written reports (one per group) to be uploaded, latest by Sunday/Monday evening (5 days after the lab took place)*
  - Will be returned graded the next day before the lab session on Tuesdays/ Wednesdays
  - Final score for Criterion I: average value of all such written-report grades (minus the worst one)

* Penalty on the report grade (-1 point) if not made available on Sunday/Monday 23:59

- **Criterion II: Oral examination**
  - Each student to be examined orally on **20.12.2023**
  - 20-minute question period, to evaluate general comprehension of important practical aspects of conducting nuclear reactor measurements.

Final grade for course: equally weighted, mean score obtained
Uploading of reports via **Moodle** by Sunday/Monday 23:59:59

- Format for file name: GRX-EY-day-month-year.pdf (X: group no.; Y: experiment no.)
- Concise: <10 pages
- Formatting at scientific publication level
  - Proof-read the report before submitting

Sample 2 proved to be a very weak beta minus emitter (it is probability a material artificially activated some time ago, exceeding its half life).

Read yourself before you submit

- Figure, Table captions exist and are correctly referenced in the text
Reporting results

- Always attach the raw measurements to the report when submitting on moodle
  - Table in Appendix
  - .tka file

- Measurement values reported without associated uncertainty are useless
  - An attempt to estimate the absolute or relative (specify!) uncertainty should always be made
  - One or two significant decimal digits are adequate for uncertainty (2 when the leading digit is 1 or 2)

- Pay attention to the number of significant digits
  - Related to the uncertainty of the measurement!

\[
y = 1.024 \text{ V}, \quad \sigma(y) = 0.038 \text{ V}
\]

\[
y = 1.02 \text{ V},
\]

<table>
<thead>
<tr>
<th>Water Level (mm)</th>
<th>cps (s(^{-1}))</th>
<th>(\sigma_{\text{cps}})</th>
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<tbody>
<tr>
<td>910</td>
<td>21.23</td>
<td>0.19</td>
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<tr>
<td>920</td>
<td>27.1</td>
<td>0.2</td>
</tr>
</tbody>
</table>

**Vincent Lamirand**

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Too many digits both in the mean and unc. values.
Figures

- Axis labels!
- Add captions

(b) *Amplifier output of detector 1.*
Always conclude on a reported measurement
  - Compare to reference values

• Good or bad agreement is decided by uncertainty!
Merci