



University of  
Zurich<sup>UZH</sup>

Physical Chemistry

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# Physikalisch-chemisches Praktikum II (Modul 323)

## Einführung

Jan Helbing, 16.02.2015



## People

Students in groups of two...

Zonglin Chu

Superhydrophobic Surfaces

Biplab Dutta

VCD Spectroscopy

Valentin Dubois

Single Molecule Spectroscopy

Philip Johnson

Femtosecond Spectroscopy

Davide Lotti

Nanosecond Spectroscopy

Steven Waldauer

Flash Photolysis

Jan Philip Kraack

Vibronic Spectroscopy



## Physical Chemistry

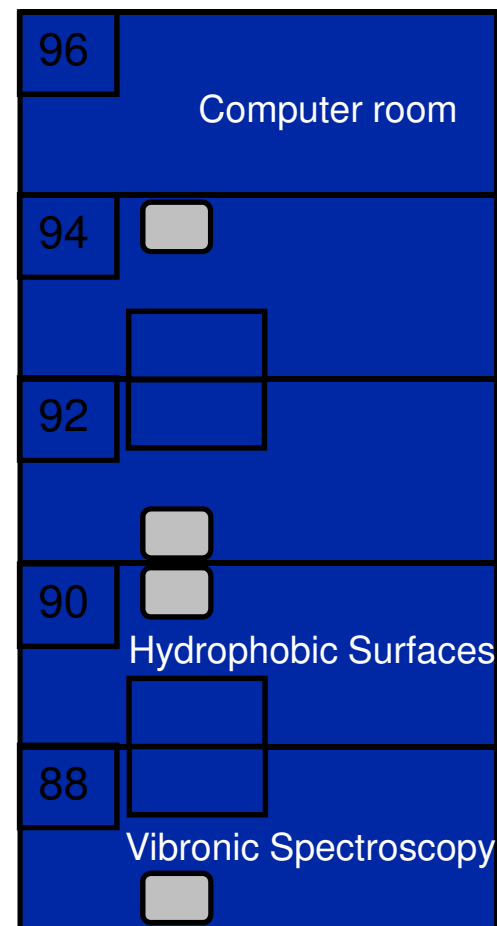
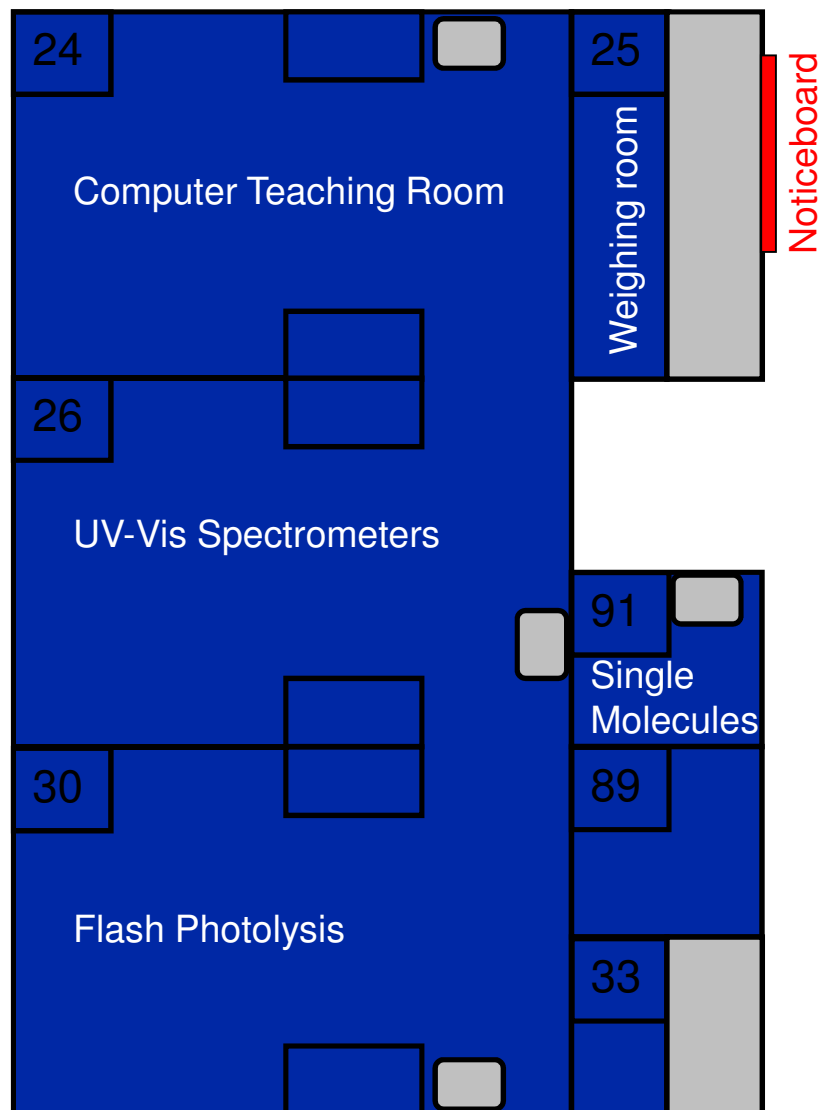
	Vibronic Spectroscopy	Single Molecule Spectroscopy	Superhydrophobic Surfaces	VCD	Nanosecond Spectroscopy	Flash Photolysis	Femtosecond Spectroscopy
Week 1 16.2	A G	B	C	D	E	F	
Week 2 23.2	F	A G	B	C	D		E
Week 3 2.3	E	F	A G	B	C	D	
Week 4 9.3	D	E	F	A G	B		C
Week 5 16.3	C	D	E	F	A G	B	
Week 6 23.3	B	C	D	E	F	G	A
Week 7 30.3	Make-Up Week						
Week 8 15.4 Wednesday	Poster Presentation						
Assistent	Philip Kraack	Valentin Dubois	Zonglin Chu	Biplab Dutta	Davide Lotti	Steven Waldauer	Philip Johnson



## Organisation

- Chose your laboratory partner and fill out the circulating lists !
- 6 experiments per student according to schedule
- „Choice“ between Ultrafast spectroscopy (A, C, E) and Flash photolysis (B, D, F, G)
- Check noticeboard (13 – K) for information.

<http://www.pci.uzh.ch/teaching/Download/PCPII.html>



Übersicht Y13-K  
Physikalisch-chemisches Praktikum II



## Experiments

- Approach the assistants 1 week before your experiments to fix dates, collect instructions
- Come prepared (read instructions and supplemental information, ask questions before your laboratory time!)
- Typically one afternoon for data acquisition. Further time may be required (decided by the assistants)
- A dedicated, individual laboratory notebook is required for this laboratory course (bound, with name, numbered pages)
- Electronic data files must be documented and secured. A link to a directory on our server with all your original data must be provided at the end of the course!



## Evaluation and Laboratory report

- Due one week after the experiment, one correction possible
- Write reports and evaluate data individually, no groupwork!
  - Introduction (what is the experiment about, context)
  - Description of the experiment in your *own* words (and drawings)
  - Results: graphical representation and description of data and evaluation, fits, observations, error analysis...
  - Discussion: what can you conclude from *your* data
  - Conclusion: summary of findings and remarks
- **Text copied from instructions, previous reports, wikipedia etc. will not be accepted!**



- Use of other people's data without mentioning the source, making up data...
- Copy or translation of someone else's work, a webpage or written instructions (even if not literally). We have access to reports from previous years!
- Use of graphs or drawings without source
- Use of pre-existing evaluation scripts or excel sheets for data evaluation. (Be aware that experiments change (slightly) from year to year!)





## Original (Instructions):

Like our hands, a material or molecule is chiral, when it cannot be superimposed with its mirror image; the two images are called enantiomers or optical isomers. Many biologically active molecules are chiral (including most amino acids and sugars) making chirality one of the most important structural features of the biological world.

## Report:

A molecule is said to be chiral when it cannot be superimposed with its mirror image. In such cases, the two images are called enantiomers or optical isomers. Chirality is one of the most important structural features in biology. Like most amino acids and sugars many biologically active molecules are chiral.



## Poster Session

- Your last experiment will be presented in form of a Poster
- Draft of your poster can be corrected with the assistant one week after the experiment
- Final version must be submitted as a pdf file 2 days later (Wednesday)
- Poster session: Wednesday, April 15, 15-17 h (to be confirmed)



## Grading

- Lab work and report/poster will be graded on a scale of 1-3
- Late reports (> 1 week after experiment) will not be given back for corrections. No admission to next experiment before a missing report is handed in.
- An average grade of 2 or better is required to pass the course
- All six experiments must be completed, all data must be stored and documented
- Attending the poster session is compulsory



## Introduction to non-linear fitting (Origin9)

- Two afternoons in groups of up to 12 people:
  - Error estimate of fitting parameters
  - Non-linear fitting methods
  - Simultaneous fitting of multiple curves
- Note: Origin can be installed on any Windows computer and run with a VPN connection at home.

<http://www.chem.uzh.ch/teaching/documents/year3/che323.html>