

## « Tutorial in macromolecular crystallography » 2023 edition

**The aim of the tutorial is to deepen the theoretical knowledge of crystallography and to get a first introduction in the hands-on aspects of macromolecular crystallography.**

The tutorial will take place during one week from 6 March to 10 March 2023. It will include 22 hours of classes (lectures and exercises) as well as three 2-hour sessions of practical training on graphical workstations and a 2 h practical in data collection on a synchrotron beamline. Teaching will be in English. The tutorial is aimed at any PhD student working in the field of structural biology as well as PhD students in chemistry facing crystallographic techniques. The classes address more fundamental aspects of crystallography (pencil, paper, ruler and pocket calculator are required) as well as work with current software.

The tutorial will take place in the CIBB seminar room and the CIBB graphics room on the EPN campus.

**Public: Students in biochemistry, biophysics, structural biology, chemistry**

Teaching volume: **30 h, 4 ECTS**

### Preliminary program

	9:00 – 12:00 h		14:00 – 17:00 h	
Monday 6.3.2023	Space groups and symmetry CIBB seminar room 2 <sup>nd</sup> floor Wim Burmeister		Protein crystallisation CIBB seminar room 2 <sup>nd</sup> floor Monika Spano	
Tuesday 7.3.2023	Reciprocal space, mathematical background, Fourier transform, diffraction physics CIBB seminar room 2 <sup>nd</sup> floor Wim Burmeister		<b>The diffraction pattern / oscillation method/scaling/twinning</b> <b>Lecture and computer sessions</b> Andrew McCarthy	
Wednesday, 8.3.2023	Patterson / Experimental Phasing CIBB seminar room 2 <sup>nd</sup> floor Shibom Basu		Refinement and validation CIBB seminar room 2 <sup>nd</sup> floor Matthew Bowler	
	9:00h – 12:00 h		14:00 – 15:30 h	15:30 – 17:00 h
Thursday, 9.3.2023	<b>Beamline practical</b> <b>ESRF ID30B</b> Christoph Müller-Diekmann (gr. 2a)	<b>Beamline practical</b> <b>ESRF ID30B</b> Nicolas Foos (group 1a)	<b>Beamline practical</b> <b>ESRF ID30B</b> Andrew McCarthy (group 2b)	<b>Beamline practical</b> <b>ESRF ID30B</b> Andrew McCarthy (group 1b)
	<b>Practical Experimental Phasing</b> N. Tarbouriech, W. Burmeister, N.N. (group 1)	<b>Practical Molecular replacement</b> N. Tarbouriech, W. Burmeister, N.N. (group 2)	<b>Practical Molecular replacement</b> N. Tarbouriech, W. Burmeister, N.N. (group 1)	<b>Practical Experimental Phasing</b> N. Tarbouriech, W. Burmeister, N.N. (group 2)
Friday, 10.3.2023	9:00h – 12:30 h		14:00 – 16:00 h	16:00 – 17:00 h
	Molecular Replacement and NCS / CIBB seminar room 2 <sup>nd</sup> floor Carlo Petosa		<b>Practical Refinement and validation</b> Nicolas/Tarbouriech, W. Burmeister, N.N. (all)	Interface with AI predictions (AlphaFold2) CIBB seminar room 2 <sup>nd</sup> floor Max Nanao

Capacity: **20 students**

Contact persons:

**Please contact me directly for registration (do not go through the ADUM platform):**

**Wim Burmeister** [wim.burmeister@ibs.fr](mailto:wim.burmeister@ibs.fr)

Please provide the following information:

- Your status or the year of your doctoral studies (1<sup>th</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> etc.)
- Institute, group and name of your supervisor

**For questions about site entry, please contact**

**Elena Slanickova** [elena.slanickova@ibs.fr](mailto:elena.slanickova@ibs.fr), 04 76 20 94 01.