PC18 001 FEBS course programme

	Lectures 8:30-13:00	**Lab Exercises** 14:00-18:30	**Evening events** 20:00 -
Sunday June 10	10:00-14:00 Registration 13:00-14:00 Lunch	15:30 Coffee and tea time	bar open till 23:00
Sunday June 10 14:45 Coffee and tea time	**14:00-14:30** Welcome and Course remarks [Ivana Kuta Smatanova & Pavlína Řezáčová] **14:30-14:45** Prologue by the vice-rector USB [Tomáš Polívka] **14:30-14:45** Introduction by member of the FEBS ACC **15:15-16:00** Principles of protein crystallization: The nature of Protein Crystals and the Physical Chemistry of their formation [Bernhard Rupp] **16:00-16:45** Capillary counterdiffusion technique for protein crystallization and screening [Gavi = J. A. Gavira] **16:45-17:30** Crystallization of membrane proteins in lipidic systems [Martin Caffrey] **17:45-18:30** Conventional crystallization methods and their modifications [Jeroen Mesters] **18:35-19:35** *Lecture by IUBMB speaker*: MOLECULAR MOVIES WITH NANOCRYSTALS USING XFELS: SMALL IS BEAUTIFUL [Petra Fromme]		Welcome party
Monday June 11 10:30 Coffee and tea time	**9:00-9:45** Principles of protein crystallization II: Methods, evaluation, and properties of 'real' crystals [Bernhard Rupp] **9:45-10:30** Unconventional crystallization strategies and techniques for screening and optimisation [Naomi E. Chayen] **11:00-11:30** Interpretation of the crystallization drop results [Terese Bergfors] **11:30-12:00** Seeding Strategies for "Random" Crystal Screening and Crystal Optimization [Patrick Shaw Stewart] **12:00-12:45** Tips and tricks for protein crystal manipulation and handling [José A. Gavira] **12:45-13:10** Evaluation of crystallization trials with the UVEX microscope [James Gordon]	1. Conventional techniques and their modifications, crystallization of own proteins [J. Mesters] 2. "The secret life of your crystallization drop"? [B. Rupp] 3. Crystallization of membrane proteins in lipidic system [M. Caffrey] 4. Observation of crystal growth / Seeding [T. Bergfors] 5. Crystallization under oil [J. Govada] *Optional*: Conventional techniques and crystallization of own proteins [J. Mesters, Ľ. Urbániková] *Optional.:* Evaluation of crystallization trials with the UVEX microscope [J. Gordon] *Optional:* "Random" Microseeding [P. Shaw Stewart]	Theory of X-ray diffraction [Jeroen Mesters] Discussion with "speakers of the day" + posters
Tuesday June 12 10:45 Coffee and tea time	**9:00-9:35** From protein expression and purification to its crystallization [Radka Chaloupkova] **9:35-10:10** Protein as the main variable in crystallization [Ľubica Urbániková] **10:10-10:45** What to do if everything has failed" [Terese Bergfors] **11:15-12:00** Crystallization microfluidic systems: strategies and perspectives [Claude Sauter] **12:00-12:35** Publication of scientific results with emphasis on crystallization communications [Howard Einspahr] **12:35-13:00** Analytical Ultracentrifugation: New Multiwavelength Sedimentation Analysis of Proteins in Solution [Martin Máša]	1. Observation of crystal growth / Seeding [T. Bergfors] 2. Capillary protein crystallization using counter-diffusion techniques [J. Gavira] 3. "Random" Microseeding Microseeding [P. Shaw Stewart] 4. Crystallization under oil [L. Govada] 5. Publication of scientific results with emphasis on crystallization communications [H. Einspahr] 6. From the biomolecule solution to its 3D structure in a microfluidic chip [C. Sauter] 7. "The secret life of your crystallization drop"? [B. Rupp] *Optional :* Conventional tech. and crystallization of own proteins [J. Mesters, Ľ. Urbániková] *Optional*: Evaluation of crystallization trials with the UVEX microscope [J. Gordon] *Optional:* Dynamic light scattering [K. Dierks]	**20.00 - 22:00** Poster session and chocolate fountain

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Wednesday June 13 10:45 Coffee and tea time	**9:00-9:30** Using fluorescence to find your crystals [Crissy L. Tarver] **9:30-10:00** Crystallization results analysis and optimization using ionic liquids [Marc L. Pusey] **10:00-10:45** Advanced and non-conventional methods for controlling the size and the shape of protein crystals [Abel Moreno] **11:15-12:00** DLS measurements prior to crystallization experiments [Christian Betzel] **12:00-12:45** Crystallization of Protein-Nucleic Acid Complexes [Christian Biertümpfel]	**Social program** Visit of NH old castle and Teresa Valley (14:30 – 18:00) Free afternoon Dinner at **18:00** in the castle	**20:00-21:00** Structure of a symmetric photosynthetic reaction center–photosystem [Raimund Fromme]
Thursday June 14 10:30 Coffee and tea time	**9:00-9:45** Preparation of protein samples for crystallization experiments [Pavlína Řezáčová] **9:45-10:30** Preparation of Micro- and Nano-Crystals for Free-Electron-Laser and Synchrotron Radiation Sources [Christian Betzel] **11:00-11:45** Membrane protein crystallization [Hartmut Lücke] **11:45-12:30** Crystallization of viral complexes [Ivana Nemčovičová] **12:30-13:00** Assessing the diffraction quality of crystals [Vernon Smith]	1.Dynamic light scattering [K. Dierks] 2. Trace Fluorescent Labeling and Low Cost Fluorescent Imaging [M. Pusey, C. Tarver] 3. Capillary protein crystallization using counter-diffusion techniques [J. Gavira] 4. From the biomolecule solution to its 3D structure in a microfluidic chip [C. Sauter] 5. Practical Considerations for the Crystallization of Protein-Nucleic Acid Complexes [Ch. Biertümpfel] 6. Publication of scientific results with emphasis on crystallization communications [H. Einspahr] 7. Practical Crystallography – how to perform a diffraction experiment? [V.Smith] *Optional*: Conventional techniques and crystallization of own proteins [J. Mesters, Ľ. Urbániková] *Optional:* Single particle cryo-EM [E. Cunha] *Optional:* Methods for Controlling the Size and the Shape of Protein Crystals [A. Moreno]	Theory of X-ray diffraction [Jeroen Mesters] Round table discussion + student presentations
Friday June 15 10:30 Coffee and tea time	**9:00-9:45** Introduction to single particle cryo-EM [Eva Cunha] **9:45-10:30** Optimisation of crystal growth for neutron crystallography [Monika Budayová-Spano] **11:00-11:45** State-of-art biological Small-Angle-Scattering and new possibilities on Free Electron Lasers [Manfred Rössle] **11:45-12:25** Complex view into structure [K.V. Venkatachalam]	1. Trace Fluorescent Labeling and Low Cost Fluorescent Imaging [M. Pusey, C. Tarver] 2. Practical Considerations for the Crystallization of Protein-Nucleic Acid Complexes [Ch. Biertümpfel] 3. Conventional techniques and crystallization of own proteins [J. Mesters, Ľ. Urbániková] 4. Single particle cryo-EM [E. Cunha] 5. Methods for Controlling the Size and the Shape of Protein Crystals [A. Moreno] *Optional:* Practical Crystallography – how to perform a diffraction experiment? [V.Smith]	**19:00** Farewell dinner
Saturday June 16 10:45 Coffee and tea time	**9:30-12:30** Crystal observation, testing, handling, mounting and cryocooling [J. Brynda, P: Pachl]		