



ADVANCED METHODS IN MACROMOLECULAR CRYSTALLIZATION VI

The 1st joint FEBS-INSTRUCT crystallization course in the middle EU
(FEBS PC12-023)



Academic and University Center at Nové Hradý, Czech Republic JUNE 20 - 27, 2014

DATE OF THE COURSE

JUNE 20 - 27, 2014

APPLICATIONS DEADLINE

MARCH 31, 2014

REGISTRATION

<http://febs.img.cas.cz>

ORGANIZING COMMITTEE

ASSOC. PROF. IVANA KUTÁ SMATANOVÁ

FACULTY OF SCIENCE UNIVERSITY OF SOUTH BOHEMIA ČESKÉ
BUDĚJOVICE & INSTITUTE OF NANOBIOLOGY AND SYSTEMS BIOLOGY
GRCR AS CR, NOVÉ HRADY, CZECH REPUBLIC
e-mail: ivanaks@seznam.cz

DR. PAVLÍNA ŘEZÁČOVÁ

INSTITUTE OF ORGANIC CHEMISTRY AND BIOCHEMISTRY & INSTITUTE
OF MOLECULAR GENETICS AS CR, PRAGUE, CZECH REPUBLIC
e-mail: rezacova@img.cas.cz

PROF. JUAN MANUEL GARCIA-RUIZ

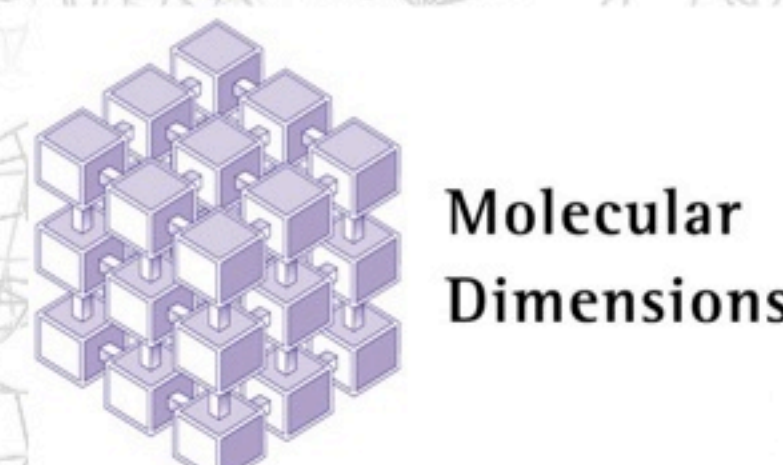
LABORATORIO DE ESTUDIOS CRISTALOGRAFICO (LEC), INSTITUTO
ANDALUZ DE CIENCIAS DE LA TIERRA (IACT), GRANADA, SPAIN
e-mail: jmgruiz@ugr.es

MAIN SPONSORS



LONG-TERM CO-SPONSORS

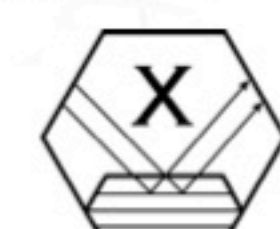
Jena Bioscience
www.jenabioscience.com



OTHER CO-SPONSORS



Organized with support of the Czech and Slovak Crystallographic
Association, Czech Society for Structural Biology and Faculty of Science
of the University of South Bohemia in České Budějovice.



SPEAKERS AND TUTORS

JEROEN MESTERS LÜBECK, GERMANY

BERNHARD RUPP LIVERMORE, CA, USA

PETER G. VEKILOV HOUSTON, TX, USA

LATA GOVADA & SAHIR KHURSHID LONDON, UK

DAVID STUART OXFORD, UK

LUBOMÍR JANDA BRNO, CZECH REPUBLIC

IVANA KUTÁ SMATANOVÁ NOVÉ HRADY, CZECH REPUBLIC

MARC L. PUSEY HUNTSVILLE, USA

TERESE BERGFORS UPPSALA, SWEDEN

PAVLÍNA ŘEZÁČOVÁ PRAGUE, CZECH REPUBLIC

ESTELA PINEDA MOLINA GRANADA, SPAIN

PATRICK SHAW STEWART BERKSHIRE, UK

MARTIN CAFFREY DUBLIN, IRELAND

MONIKA BUDAYOVÁ-SPANO GRENOBLE, FRANCE

JÁN DOHNÁLEK PRAGUE, CZECH REPUBLIC

JOE NG HUNTSVILLE, AL, USA

CLAUDE SAUTER STRASBOURG, FRANCE

CHRISTIAN BETZEL HAMBURG, GERMANY

JÍŘÍ BRYNDA PRAGUE, CZECH REPUBLIC

JOSÉ A. GAVIRA GRANADA, SPAIN

RICHARD GIEGÉ STRASBOURG, FRANCE

NAOMI E. CHAYEN LONDON, UK

KARSTEN DIERKS LÜNEBURG, GERMANY

IVANA NEMČOVIČOVÁ BRATISLAVA, SLOVAKIA

VERNON SMITH KARLSRUHE, GERMANY

LUBICA URBÁNIKOVÁ BRATISLAVA, SLOVAKIA

HOWARD EINSPAHR LAWRENCEVILLE, NJ, USA

PETRA FROMME TEMPE, AZ, USA

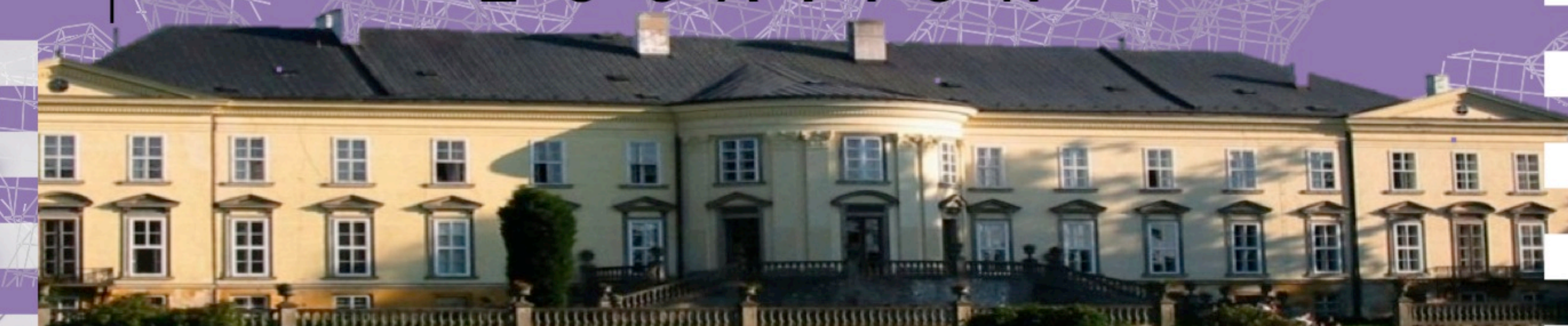
SO IWATA LONDON, UK

JUAN MANUEL GARCÍA-RUIZ GRANADA, SPAIN

TOPICS

- E. coli* - a factory for recombinant proteins
- From protein expression and purification to protein crystallization
- Protein as the main variable in crystallization
- In vivo* protein crystallization as a new route for structural biology
- Introduction to protein crystallization
- Nucleation of protein crystals
- Morphology and crystal growth mechanisms
- Preparation of protein samples for crystallization experiments
- Protein crystallization screening
- Additives in protein crystallization
- Advanced light scattering methods
- Conventional crystallization methods and their modifications
- Crystallization under oil
- Advanced crystallization techniques
- Counter diffusion methods for protein crystallization and screening
- Lipidic cubic phase crystallization
- Microseeding with automatic systems
- Nanocrystals for future application
- Membrane protein crystallization
- Interpretation of the crystallization drop results
- Crystallization and crystallographic analysis in a microfluidic chip
- Illuminating the screening process with fluorescence
- Tips and tricks for protein crystal manipulation
- Crystal mounting and freezing
- Screening the diffraction quality of protein crystals
- The growth of large crystals for neutron diffraction
- Crystallogenes methods for structural biology
- Publishing your crystallization results

LOCATION



Nové Hradý is located in the south of the Czech Republic. The Academic and University Center resides in a very stylish chateau, which provides many facilities such as two lecture halls, laboratories and a student dormitory.

INFORMATION

The course is intended for undergraduate (5th year) and postgraduate students and postdocs with an interest in macromolecular crystallization. Number of participant is limited to 25. The crystallization of biological macromolecules is still poorly understood and, as a consequence, success of the common trial-and-error experiments is not predictable. On the other hand, more rational approaches have been developed in the past few years and prospects for the science of crystallogenes are in fact good. Many of the new approaches are based on an improved theoretical insight into the processes of nucleation and crystal growth. The planned course is designed to bring over the message of the benefits of more rational approaches to macromolecular crystallization. The course will consist of theoretical lectures, seminars as well as practical work and demonstrations (lectures 40%, practical work 50%, seminars 10%). For crystallization experiments, typical recipes using commercial proteins (lysozyme, concavalline A, etc.) will be used. In addition, students can bring their own proteins and carry out crystallization trials on these during the course.