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[by SIBPA] Report of the XXV SIBPA-IVSLA International School of Pure and Applied Biophysics

XXV School of Pure and Applied Biophysics

on

"Quantitative analysis of optical imaging for Medicine and Biophysics"



Venice, - Palazzo Franchetti (S. Marco, 2847)

The XXV SIBPA-IVSLA International School of Pure and Applied Biophysics on "Quantitative analysis of optical imaging for Medicine and Biophysics" developed over 5 days during the week of 18-22 January 2021.

The school was the result of the joint effort of the Italian Society of Pure and Applied Biophysics (SIBPA), the Venetian Institute for Sciences and Arts (IVSLA), the Institute Pasteur (IP, Paris) and the Institute of Applied Sciences and Intelligent Systems (ISASI) of the National Research Council (CNR). The school, which should have been held in Venice in the gorgeous venue of Palazzo Franchetti, was converted to an online event due to the travel restrictions related to the COVID19 pandemic and was supported by the Università di Milano-Bicocca (UniMIB, Milano, I).



The school offered to 35 participants, coming from 14 countries (Belgium, Ecuador, Egypt, France, Greece, Iraq, Iran, Italy, Peru, Portugal, Russia, Spain, UK, USA), an overview of the foundations and applications of some of the most recent methods for quantitative analysis of data provided by modern optical and multimodal imaging, with a special focus on recent machine learning approaches.

The scientific committee constituted by Giuseppe Chirico (UnMIB), Pietro Ferraro (CNR) and Christophe Zimmer (IP), supervised by Giorgio Giacometti (IVSLA), organized the school schedule in five one-hour lectures per day. Technical details of the quantitative analysis were discussed in these extended (1 hour) lectures that were given by leading researchers in the fields of Artificial Intelligence for biophysical and biomedical analyses, of Medical Imaging Data analysis and of optical microscopies and nano-scopies. Besides these lectures held during main online sessions, and in the effort to offer to the attendees the possibilities of free informal discussions with the lecturers, shorter separate video-calls were scheduled with each of the lecturers in three slots during the day.

Details on the program of the school can be found at the link: <https://www.sibpa.it/index.php/scuola-internazionale-di-biofisica-sibpa-ivsla/school/133-xxv-edition-2021>

[by SIBPA] Biophysics Week Guest Lecture – Luis Pardo (MPI, Göttingen, D)

In occasione della Biophysics Week, promossa dalla USA Biophysical Society, l'IBF-CNR Genova ha organizzato il seguente seminario online:



Biophysics Week 2021 - Luis Pardo guest lecture

The PRIN project LIONESS (Leveraging basic knowledge of ion channel network in cancer for innovative therapeutic strategies) promotes the following Guest Lecture within the [Biophysics Week](#):

Prof. Luis Pardo, Max-Planck-Institute for Experimental Biology, Göttingen, Germany
(<https://www.em.mpg.de/2027072/pardo>).

"The role of the voltage-gated potassium channel KV10.1 in cell division and tumor progression".

Tuesday, 23 March, 2021, 7pm European Standard Time (2pm US Eastern Time).

[Click to leave your name and e-mail address in order to be notified how to connect to the event.](#)

Registrazione gratuita: <http://biophysicsweek.ge.ibf.cnr.it/Lecture-Pardo/intro>

Info: Michael Pusch, IBF-CNR Genova, michael.pusch@ibf.cnr.it

[CfPO] [EBSA] PhD positions in Physics and Chemistry of Biological Systems at SISSA, Trieste, Italy

There are 5 positions available for the PhD in Physics and Chemistry of Biological Systems" at the International School for Advanced Studies (SISSA), Trieste, Italy.

The application deadline is March 16, 2021, for both EU and non EU students

Students are expected to join the written and oral exam on March 29 and 30. The exam will be held remotely.

Applicants should have a good background in Physics, Chemistry, Applied Mathematics or related subjects and are expected to obtain their Laurea Specialistica or equivalent degree by Autumn 2021.

The application can be done online at this link:

<https://pica.cineca.it/sissa/phd-physchem-01-2021/>

Admitted students will have the opportunity to follow a one-year educational program in an international and interdisciplinary environment, followed by three years of active research in one of the following areas:

- Structural bioinformatics
- Statistical mechanics of complex molecular systems
- Biomolecular simulations
- Simulations of rare events
- Data science of complex and biomolecular systems
- Polymer physics
- Active matter

For further information about the available research lines and past entrance exams see:

<http://www.sissa.it/sbp/phdsection/entranceexam.php> and related webpages.

[CfPO] [EBSA] PhD positions PhD position in "Microscopic Modeling of Protein-Drug Binding"

I have a PhD position available in my newly established group at the Frankfurt Institute for Advanced Studies and the Center for Multiscale Modeling in Life Sciences.

The PhD project focusses on the application of molecular dynamics methods to characterise the binding of pharmacologically active molecules to proteins. Besides classical pharmaceutical agents, photoswitchable molecules will be investigated which can be activated by means of light. The goal is to provide a more detailed microscopic understanding of protein-drug interactions. I am looking for somebody who is excited about applying high-performance computing to work on a highly interdisciplinary topic connecting biophysics, medicinal chemistry, and biology.

The application deadline is 28 February 2021.

More information is provided at:

<https://fias.institute/en/about-fias/open-positions/phd-position-in-microscopic-modeling-of-protein-drug-binding/>

Sebastian Thallmair thallmair@fias.uni-frankfurt.de

[CfPO] Open Postdoc position, National Institute of Chemistry, Ljubljana, Slovenia

NATIONAL INSTITUTE OF CHEMISTRY 75^{YEARS}

SI-1001 Ljubljana
Hajdrihova 19, POBox 660
Phone: +386 (0)1/476 02 00
Fax: +386 (0)1/476 03 00
<http://www.ki.si>

Department of Molecular Biology and Nanobiotechnology

OPEN POSITION FOR A POSTDOC IN STRUCTURAL BIOLOGY

The **National Institute of Chemistry** is a scientifically excellent, established and breakthrough research institution based in Central Europe. Through our cutting-edge research, we enrich the global body of knowledge by solving society's most pressing challenges, including: health, sustainable energy, climate change, circular economy and safe food. Our research goals push the boundaries of science and create new value. We successfully transfer knowledge to industry and support the long-term role of science in the development of society. The Institute builds its scientific excellence by collaborating with the best global research institutions, groups and individuals. We are members of international multidisciplinary research networks. We provide a stimulating environment and an open learning space where young researchers can develop their curiosity and realise their research creativity. In doing so, we ensure that future generations benefit from the profession. More here:

<https://www.ki.si/en/>

A postdoctoral position is available in the Department of Molecular Biology and Nanobiotechnology. We are looking for an individual with excellent expertise in cryo-electron microscopy (especially in SPA, but cryo-ET and/or microED are a bonus) to contribute to our ongoing projects. The department focuses on biochemical, biophysical and structural studies of biological molecules and their interactions to understand molecular mechanisms of action. Research topics in the department range from the study of molecular mechanisms of lipid membrane disruption induced by pore forming proteins, development of protein nanopores for their application in biotechnology and medicine, structure-function and mechanism of action of virulence factors of the pathogenic bacterium *Listeria monocytogenes*, structural insights into the pathogenicity of filamentous plant viruses and the synthetic biology of virus-like particles, to the mechanism of DNA-repair and the role of ribosomes in disease states. More on Department:

<https://www.ki.si/en/departments/d11-department-of-molecular-biology-and-nanobiotechnology/>

Start date and duration: ideally May 1, 2021, negotiable. The position is initially for 1 year with the possibility of extension. During this time, the candidate will be expected to contribute to ongoing projects and will have the opportunity (and be strongly encouraged) to apply for their own fellowship/grant to continue research in the department after this first year, with help on proposals provided by the Institute's highly experienced grant office.

Requirements: PhD in biochemistry/biophysics or structural biology. Excellent knowledge and practical experience in cryo-electron microscopy (especially SPA; cryo-ET, micro-ED or X-ray crystallography is a bonus). In accordance with the given career stage, the candidate should demonstrate creativity, independence and scientific quality as well as provide evidence on published articles in the relevant field. Good English language – spoken and written is required, and motivated individuals with collaborative mindset.



Available infrastructure and working atmosphere: The Department has the state-of-the-art equipment in the fields of molecular biology, protein and lipid biochemistry and biophysics, structural and cell biology. Structural biology at the Department includes X-ray crystallography and cryo-EM. The Department has been operating the cryo-EM facility since November 2019, with a Glacios 200 kV microscope with Falcon 3 EC detector and a sample preparation room with Vitrobot and excellent computational support. The microscope is running successfully non-stop and currently reaching resolutions beyond 2.5 Å. There is the possibility of access to 300 kV cryo-TEMs at external institutions if/when required. In the case of X-ray crystallography: proteins are crystallized at the Department and data collected at the EU-based synchrotrons.

The Department comprises many young scientists and promotes excellence and a healthy working environment through meetings such as journal clubs, departmental seminars, weekly project meetings, annual retreats, informal meetings and social gatherings. We encourage collaboration among department members as well as with other groups at the Institute, as well as collaborations with external (international) research groups.

Location: National Institute of Chemistry is located in Ljubljana, just a few minutes' walk from the City centre. Ljubljana is the capital and largest city of Slovenia and is the cultural, educational, economic, political and administrative centre. Ljubljana has become a very popular tourist destination, as well as the whole of Slovenia with its breathtaking nature and beautiful, lively towns and villages. More: <https://www.visitljubljana.com/en/visitors/> and <https://www.slovenia.info/en>

For more information, **please contact:** Assoc. Prof. Dr. **Marjetka Podobnik**, Head of Department of Molecular Biology and Nanobiotechnology, e-mail: marjetka.podobnik@ki.si

We might be a small institute in a small country – but we think big!

[CfPO] [EBSA] Postdoctoral researcher position (Computational biochemistry and biophysics) Helsinki, Finland

<https://www.helsinki.fi/en/open-positions/postdoctoral-researcher-computational-biochemistry-and-biophysics>

The Department of Physics is a large and multidisciplinary department that offers the most varied university programme in the physical sciences in Finland. At the beginning of 2021, the department employs about 200 people, of which 1 is an academy professor, 17 are professors and 4 are associate or assistant professors. The research at the department and the research-based teaching follow a high international standard, are nationally significant, and promote the mental and economic wellbeing in society.

Faculty of Science invites applications for POSTDOCTORAL RESEARCHER in computational biochemistry and biophysics starting in September 2021 **[Due date 31.03.2021 23:59 EEST]**.

The research group at the Department of Physics, University of Helsinki, is led by Academy of Finland research fellow and Sigrid Jusélius senior researcher, Vivek Sharma. The focus of research is on the structure and mechanism of proteins involved in biological energy (ATP) generation and mitochondrial function and dysfunction. An ensemble of multi-scale computational approaches (molecular dynamics simulations, quantum chemistry, etc) are applied to study the mechanistic aspects of biomolecules in great depth. The work is done in collaboration with experimental teams (such as structural biology, clinical research, etc) in Finland and abroad. Some of the recent work has been published in well-read journals.

See here: <https://scholar.google.fi/citations?user=G4xsLQ0AAAAJ&hl=en>

Our group webpages at - <https://sites.google.com/site/vivekvivsharma/home>

We are seeking an exceptionally talented postdoctoral researcher, who recently completed his/her doctoral degree in the field of computational biochemistry and biophysics, and is looking forward to challenging projects, which he/she can lead and develop. The selected candidate will be working on the structure and mechanism of respiratory complexes, and their interplay with the lipid/solvent environment. The multi-scale approaches that will be used to study these systems include (but not limited to) classical atomistic/coarse-grained molecular dynamics (MD) simulations and quantum chemical methods, their hybrid variants, etc. Therefore, any knowledge in these areas will be considered an asset. Also, working knowledge of major software packages used for classical MD simulations and QM/MM calculations will be considered as a major advantage. The candidate will get a chance to attend international conferences, and present his/her scientific work in local and international meetings. As an employee of the University of Helsinki, researcher will receive occupational health care, and will be entitled to sports facilities, and opportunities for professional development. The postdoctoral researcher position starts in September 2021. The position is initially for 1+1 years, and may be extended further upon discussions.

The starting salary of the postdoctoral researcher will be ca. 3300–3700 euros/month, depending on the appointees' qualifications and experience. Furthermore, the University of Helsinki offers comprehensive services to its employees, including occupational health care and health insurance, sports facilities, and opportunities for professional development.

Please apply with;

a one-page motivation letter clearly highlighting research accomplishments, a two-page CV (clearly highlighting earlier relevant experience in biochemistry/biophysics and modeling/simulation), and a publication list with a brief (ca. two lines) discussion on the role played by the candidate in each publication.

Please submit all files in a single pdf document using the University of Helsinki Recruitment System by clicking the Apply for the position button below. Applicants who are employees of the University of Helsinki must submit their applications via the SAP HR portal. Deadline for applications is 31 March, 2021. The selected candidates will be contacted personally, and will be invited for an interview/discussion.

For further information, please contact academy research fellow Vivek Sharma, [vivek.sharma\(at\)helsinki.fi](mailto:vivek.sharma(at)helsinki.fi).

[CONGR] [Ebsa] EBSA Congress 2021 (Vienna 24-28 July)

<https://www.ebsa2021.org/>



13TH EUROPEAN BIOPHYSICS CONFERENCE

24–28 July 2021
VIENNA, AUSTRIA

<https://www.ebsa2021.org/>

Public Lecture
Ada Yonath
Nobel prize 2009
Weizmann Institute of Science
Israel

Plenary Lectures
Thomas Südhof
Nobel prize 2013
Stanford University, USA
Francesco Bezanilla
University of Chicago, USA
Maria Rodnina
MPI Göttingen, Germany
Raimond Dutzler
University of Zurich, Switzerland
Gerhard Hummer
Max Planck Institute, Germany
Karolin Luger
University of Colorado, USA
Carol Robinson (tbc)
University of Oxford, UK

Symposia
Protons on interface
Channels and Ca²⁺ signaling
Medical biophysics / Imaging
Membrane transporter & channels
Virus biophysics
Advanced optical microscopy
Mechanobiophysics
Light as a tool in biophysics
Biomimetic nanopores
Protein translocation, assembly and folding
Bioenergetics
Quantification of molecular forces
Membrane signal transduction
Cytoskeleton / Motor proteins
Membrane architecture and asymmetry
Membrane active peptides
Biomolecular simulations
Synthetic cell
Liquid-liquid phase separation and intrinsically disordered proteins
DNA architecture and gene regulation
Lipid-Protein interactions
Biosensors
Instruct-ERIC

Deadlines

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| 1 Dec 2020 | Start of registration and abstract submission |
| 31 Mar 2021 | End of abstract submission |
| 30 Apr 2021 | End of Early bird registration |

[Newsletter closed on 24/02/2021]