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[bySIBPA] 50 years of SIBPA: a journey through the molecules of life at CMD30-FISMAT2023

Vi ricordiamo che è ancora possibile registrarsi alla CMD30 - FisMat 2023 <https://eventi.cnism.it/cmd30-fismat>, in cui ci ritroveremo al minicolloquium "50 years of SIBPA: a journey through the molecules of life".

Il programma è già online:

<https://eventi.cnism.it/cmd30-fismat/submission/calendar>.

Entro il 16 luglio si può usufruire della registrazione scontata.

[bySIBPA] 48th Course: Memos for biophysics into the future

E' imminente l'annuncio dei dettagli inerenti la scuola di biofisica di Erice che si terrà dal 16 al 22 ottobre 2023, diretta da Mauro Dalla Serra, Alberto Diaspro e Cristiano Viappiani.

ETTORE MAJORANA FOUNDATION AND CENTRE FOR SCIENTIFIC CULTURE
1963–2023
60th ANNIVERSARY OF ACTIVITIES

**SUMMARY
OF THE 2023 COURSES — ERICE**

All Courses are sponsored by the World Federation of Scientists (WFS), the Sicilian Regional Government (ERS), the Italian Ministry of Education, University and Scientific Research and the Galileo Galilei Foundation (GGF). Some of the Courses are under the sponsorship of the Italian Ministry of Foreign Affairs, the Italian Ministry of Health, the North Atlantic Treaty Organization (NATO), the American National Science Foundation (NSF), the Italian National Research Council (CNR), the Weizmann Institute of Science, the European Physical Society (EPS), the Italian National Institute for Nuclear Physics (INFN), the Enrico Fermi Historical Museum of Physics and Study and Research Centre, the World Wildlife Fund (WWF), the Commission of the European Communities (CEC), some of the main Italian and foreign Universities and Research Centres, and the World Laboratory

INTERNATIONAL SCHOOL OF BIOPHYSICS «ANTONIO BORSELLINO»
48th Course: *Memos for biophysics into the future: Lightness, quickness, exactitude, visibility, multiplicity, and consistency*
Directors: M. DALLA SERRA – A. DIASPRO – C. VIAPPANI
16 – 22 October 2023

**50 years
SIBPA**
Società Italiana di Biofisica Pura e Applicata
1973 – 2023



[CfPo] Postdoc position in physical chemistry / biochemistry: Influence of material properties on the adsorption of proteins inspired by natural glues

Context and mission. Tissue adhesives or surgical glues are interesting alternatives to sutures and staples because they can be applied quickly, with almost no material and are relatively painless. The adhesives currently in use have certain disadvantages such as immunogenic properties, poor bioadsorption or unsuitable mechanical properties. These disadvantages encourage the search for alternative products, particularly those inspired by nature. Indeed, several animals produce very powerful adhesives necessary for their development or survival in a wet environment or in the air. Some arthropods are able to glue to various materials thanks to a protein complex resembling the composition of current surgical glues. The adhesion mechanism seems to be linked to the self-assembly of proteins secreted by the animal, forming a network of fibers onto the material surfaces. In the IMBM team of the materials and physical engineering laboratory (LMGP), we are particularly interested in protein-surface interactions. To understand the functioning of sticky proteins, we produce and purify in the laboratory recombinant proteins inspired by these natural glues. In order to study the influence of material surfaces on protein adhesion, it is important to be able to analyze and compare the adsorption of proteins on a wide range of surfaces with varied physicochemical properties. For this purpose, the CREAB team of the Molecular systems and nanomaterials for energy and health (SyMMES) laboratory has developed biochips for the multiplex study of the adsorption of molecules (proteins) by Surface plasmon resonance imaging (SPRi).

The successful candidate will be in charge of the study of the protein-surfaces interactions. This project involves the following tasks:

- production and purification of the recombinant proteins
- optimization of the fabrication of SPR biochips consisting of various surface properties
- conducting SPRi experiments to study interaction between various surfaces and proteins

The project will take place between the LMGP and SyMMES laboratories.

Candidate profile We look for a candidate with a PhD in biochemistry and/or physical chemistry for biological sciences with previous experience on protein



folding, and/or on protein-protein and protein-material interactions. The candidate should be able to work in an international team, be autonomous and have very good oral and writing skills.

The laboratories and the teams The Material and Physical Engineering laboratory (LMGP) (www.lmgp.grenoble-inp.fr/en) at Grenoble has an international reputation in the fields of nanomaterials and structured thin film materials and their applications in different fields, among which biology and biomedical engineering. LMGP has outstanding material characterization capacities that are routinely operated (SEM, TEM, Xray diffraction, ellipsometry, XPS, IR and Raman spectroscopy etc). The Interfaces between Materials and Biological matter (IMBM) team have a long-standing expertise in investigating protein adsorption and aggregation phenomena at interfaces using real-time surface-sensitive techniques (SPR, QCM, IR) and microscopy and developing custom-made molecular tools and screening assays.

The Molecular systems and nanomaterials for energy and health (SyMMES) laboratory (www.symmes.fr/en) at CEA Grenoble aims at developing basic research on themes with strong societal issue: zero-carbon energy, information and communications technology (ICT), biotechnology and human health. To do this, the SyMMES explores the design, synthesis and study of architectures and innovative and original functional materials, guarantees of the relevance of future research proposals from the laboratory. The laboratory is also interested in the reactivity and properties of biomolecules, providing a novel approach to biological questions. The Chemistry for the Recognition and Study of Biological Assemblies (CREAB) team has recognized expertise in biosensor/biochip/electronic nose development in view of applications in the field of health technologies, environment, etc.

Contacts Send C.V., cover letter and recommendation letters to: Charlotte Vendrely, LMGP (UMR 5628 CNRS-UGA), Grenoble INP; charlotte.vendrely@grenoble-inp.fr ; Yanxia Hou-Broutin, SyMMES (UMR 5819 CEA-CNRS-UGA), CEA-Grenoble; yanxia.hou-broutin@cea.fr

The position is available for 15 months starting from: September 1, 2023.

[CfPo] PhD position funded by the University of Lille (France), starting 1 October 2023



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The Laboratory Integrative Structural Biology team (CNRS EMR9002) Risk Factors and Molecular Determinants of Aging-Related Diseases (RID-AGE — Univ. Lille, Inserm, Institut Pasteur de Lille) <https://bsi-lille.cnrs.fr/>

Thesis title: Ultrahigh resolution NMR to unveil the impact of post-translational modifications in disordered proteins

Thesis supervisor: Dr. Davy Sinnaeve

Context: For many biomacromolecules (disordered proteins, but also glycans, oligonucleotides), their biological function cannot be understood on the basis of a single conformation, but as an ensemble of different transient conformations. Uncovering the molecular mechanisms of these functions requires a detailed mapping of the full ensemble of conformers. Liquid-state NMR spectroscopy is the leading experimental technique to study such flexible systems, as it provides information at an atom-specific level that is sensitive to both structure and molecular motion. Unfortunately, the fast structural averaging also strongly reduces chemical shift dispersion, resulting in low spectral resolution and complicating interpretation of spectral data.

In our research group, we are developing new NMR experiments to facilitate the extraction of spectral information for both small molecules and macromolecular compounds. These methods are mainly inspired by so-called “pure shift” homodecoupling NMR methods, which can be used to edit the presence of homonuclear couplings in the spectrum. Particularly, we are interested in developing methods that exploit these methods to accurately measure scalar coupling and residual dipolar couplings (RDCs), which are powerful reporters of molecular structure and dynamics. To learn more about our research and that of the rest of the team, please visit our website: <https://bsi-lille.cnrs.fr/la-recherche/>

This PhD project will focus heavily on NMR methodology, developing experiments with the aim of obtaining structure-sensitive spectral information. The intended application will be on biomedically relevant disordered proteins whose conformational ensemble changes upon post-translational modification (PTM), such as serine phosphorylation. Such PTMs are a biochemical means to regulate the properties of the protein, such as the binding affinities to other proteins. Towards deciphering mechanism by which post-translational modifications regulate protein function, detailed structural information is in demand.

Profile of the candidate

Candidates should have a background in chemistry or physics, with a strong affinity for analytical or physical chemistry. An enthusiastic, pro-active and co-operative approach is expected, as well the ability to work both independently and as part of a team. The daily activities will mainly consist out of research, but it is also expected that the candidate participates in internal seminars, courses, local and international scientific events, and in the supervision of Master or internship students. Collaboration and interaction with



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other researchers within the team will be encouraged. The candidate is expected to present his work both through written reports and in oral presentations, meaning good communication skills are required. Professional communication with the supervisor and other members of the team will be in English.

How to apply

To apply, please send a motivation letter and your CV to Davy Sinnaeve (davy.sinnaeve@univ-lille.fr).

Please also provide contact details of your Master thesis or internship supervisor as a reference.

[CfPo] Position for core scientist in Wien

The Vienna Biocenter Core Facilities (VBCF) acts as a nexus for science and technology and enables scientific discoveries through its collaborative spirit and access to state-of-the-art technologies. We are seeking to expand our team with a **Core scientist (f/m/d, full-time 40 hrs./wk.)** to support our Protein Technologies Facility (ProTech). ProTech offers services in molecular cloning, protein production in E. coli, insect, and HEK293 cells, as well as protein purification and biophysical characterization.

Key responsibilities

In your role you will be an essential member of the ProTech Facility and involved in all aspects of the biophysical characterization of recombinant proteins as well as their production and purification. Specifically, your primary tasks will include:

- Analysis of proteins and other biomolecules on our analytical platforms (Circular Dichroism, Dynamic Light Scattering (DLS), SEC-MALS, NanoDSF, Microscale Thermophoresis, Isothermal Titration Calorimetry, Grating-Coupled Interferometry)
- User training on instruments
- Protein expression and multi-step chromatographic purification

Key requirements

- Expertise in biochemistry, biophysics, molecular biology, or a closely related field
- Thorough understanding of the theoretical and technical principles of protein biophysical characterization (analysis of size, homodispersity, molecular interactions)
- Demonstratable practical experience in protein purification and biochemistry
- Self-organized and independent working style within a team
- Excellent command of English (spoken and written) is required; German skills are an asset
- Enthusiastic, friendly, collaborative mindset and the ability to interact professionally with our customers
- Eagerness to adopt new technologies

Your benefits



This position is unlimited. Our attractive compensation package includes subsidized access to our company crèche and kindergarten, the yearly ticket of the “Wiener Linien”, the VBC social & sports program and flexible working hours. The minimum salary for this position will be 3.149 € gross per month, on a full time basis, paid 14x per year. The actual remuneration will depend on your scientific expertise and professional experience.

Who we are: VBCF is an inter-institutional research infrastructure that was founded to enable researchers centered around the Vienna BioCenter Campus to achieve their scientific goals and become leaders within their respective research areas. To this end, we provide access to state-of-the-art instruments and the combined scientific expertise and professional experience of more than 100 scientists. We are funded by the Federal Government and the City of Vienna and take pride in recovering more than 50% of our running costs via user fees.

How to apply: Please send your CV, contact details of two referees and a letter of interest to apply@vbcf.ac.at and include the reference “CS_ProTech_23”. This call is open until July 31, 2023. Interviews will be held as soon as possible. For further information about the position, please contact David Drechsel.

As an employer we promote a culture of continuous learning and are committed to gender equality. Therefore, we strongly encourage female applicants. VBCF processes your personal data in accordance with the statutory data protection regulations.



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