- **Calls for Positions [CfPo]**
- **Congresses [CONGR]**
- **Conferences/Meetings [CONF/MT]**
- **Workshops/Symposia [WS/SY]**
- **Courses and Schools/Webinars [CS/WB]**
- **Call for papers/applications [CfP/A]**
- **EBSA News associated with biophysics [Ebsa]**
- **Media (publications, communication) [Mpc]**
- **Events sponsored a/o supported by SIBPA [bySIBPA]**

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NEWSLETTER 2024, #6 –June

[bySIBPA] XXVII Congresso Nazionale SIBPA 2024

Il XXVII Congresso della SIBPA che si è svolto a Genova ha mostrato quanto la Biofisica si sviluppi su territori sconfinati da sempre multidisciplinari.
Dall'apertura magistrale di Tomaso Poggio con Vincent Torre agli auspici conclusivi di Giorgio Parisi le partecipanti e i partecipanti, attraverso le relazioni orali e le discussioni ai poster, hanno percorso il filo rosso della ricerca sulla ali della Biofisica. Le ali per far volare la Biofisica verso il futuro hanno bisogno delle radici. Le radici e le ali, cosi l'elettricità si trasforma in luce con le equazioni di Maxwell, l'mRNA di Brenner e Karikò si "srotola" in vaccino e l'algoritmo di Ada Lovelace ci fa entrare nel metaverso dove le anime della Biofisica si uniscono, dall'elettrofisiologia alla cibernetica, dai modelli computazionali agli esperimenti.
Sulle ali della Biofisica forti delle radici messe dalle intuizioni di Antonio Borsellino che fondò a Parma la SIBPA con la complicità di alcuni giovani ricercatori - Paolo Cavatorta, Pier Raimondo Crippa, Roberto Favilla, Giorgio Montagnoli e Arnaldo Vecli - innescando una rete di ricerca nazionale con IUPAB come riferimento internazionale *(C. Musio, C.Viappiani, Introducing the Italian Society of Pure and Applied Biophysics – SIBPA. Il Nuovo Saggiatore 2020;36(3-4):80-83)*.
Le radici custodiscono e mantengono salda l'idea di Mario Ageno, che il punto di partenza per la comprensione della complessa fenomenologia degli organismi viventi risieda nell'affinamento della conoscenza dei "principi generali della fisica e dalle conseguenze che da essi derivano" (*M.Ageno, Punti di contatto tra Fisica e Biologia, Accademia Nazionale dei Lincei, 1974*). Sul canale "youtube" della SIBPA trovate un ricordo del XXVII Congresso SIBPA.
Restate sulle ali della SIBPA per volare verso la XXIX Scuola Internazionale "Bio-Memos" della SIBPA a Venezia nella tradizione consolidata dell'Istituto Veneto di Scienze Lettere e Arti (IVSLA), il congresso EBSA2025 a Roma e il XXVIII Congresso SIBPA a Catania.
Le radici e le ali (*Gang, WEA 1991*).

Link Youtube : https://youtu.be/P3ga6WwzGbY?si=b8G7aZYp_5vd3Row

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[CfP/A] Special Issue XVII Congresso SIBPA

I partecipanti al XVII congresso della nostra società, sono invitati a manifestare il proprio interesse alla pubblicazione dei lavori presentati al congresso in un numero speciale di European Biophysics Journal.
La pubblicazione non avrà costi di pubblicazione e sarà in formato open access.
Chi fosse interessato è pregato di inviare, entro il 31 luglio, un titolo (anche se provvisorio) e di indicare un referente per la corrispondenza relativa alla pubblicazione.
Una volta raccolte le adesioni, gli interessati saranno informati sulla scadenza per l'invio dei lavori prevista, verosimilmente, verso la fine dell'anno.
Le informazioni vanno inviate a rita.carrotta@cnr.it e segreteria@sibpa.it

[CfPo] PhD position at the Institut de Biologie Structurale – Granoble, France

PhD position starting 2024/2025 in the group of Martin Blackledge at the Insititut de Biologie Structurale (IBS), Grenoble, France

NMR STUDIES OF MOLECULAR DYNAMICS AND DISORDER IN THE VIRAL REPLICATION MACHINERY OF SARS-COV-2

The nucleoprotein (N) of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is important for genome replication, encapsidating the viral genome and regulating gene transcription. The central disordered domain is essential to the function of this highly dynamic protein, interacting with the viral protein nsp3,1 and containing a number of important mutations that are responsible for enhanced viral fitness, and comprising a region that is hyperphosphorylated during the viral cycle. NMR spectroscopy is the tool of choice for studying the conformational behaviour of intrinsically disordered proteins, an abundant class of proteins that are functional in their disordered form. They represent 40% around of all known proteomes and are too dynamic to be studied by crystallography or electron microscopy. The host lab has developed a large number of unique NMR-based tools to help understand the function of this class of proteins at atomic resolution.2–11 We will use state-of-the-art NMR spectroscopy, small angle scattering and electron microscopy, in combination with molecular simulation, to describe the interactions of N with host and viral partner proteins and viral RNA. The results will be correlated with light and electron microscopy, and fluorescence spectroscopy carried out in collaboration. In addition, the druggability of intrinsically disordered regions of the viral replication machinery is an important, but essentially untapped source of new inhibitory strategies that will be addressed by this project.

1. Bessa, L. M. et al. The intrinsically disordered SARS-CoV-2 nucleoprotein in dynamic complex with its viral partner nsp3a. Science Advances 8, eabm4034 (2022).
2. Bernado, P. et al. A structural model for unfolded proteins from residual dipolar couplings and small-angle x-ray scattering. Proc Natl Acad Sci 102, 17002–17007 (2005).

3. Salmon, L. et al. NMR Characterization of Long-Range Order in Intrinsically Disordered Proteins. J. Am. Chem. Soc. 132, 8407–8418 (2010).
4. Jensen, et al. Exploring free-energy landscapes of intrinsically disordered proteins at atomic resolution using NMR spectroscopy. Chem. Rev. 114, 6632–6660 (2014).
5. Abyzov, A. et al. Identification of Dynamic Modes in an Intrinsically Disordered Protein Using Temperature-Dependent NMR Relaxation. J. Am. Chem. Soc. 138, 6240–6251 (2016).
6. Milles, S. et al. An ultraweak interaction in the intrinsically disordered replication machinery is essential for measles virus function. Science Advances 4, eaat7778 (2018).
7. Adamski, W. et al. A Unified Description of Intrinsically Disordered Protein Dynamics under Physiological Conditions Using NMR Spectroscopy. J. Am. Chem. Soc. 141, 17817–17829 (2019).
8. Guseva, S. et al. Measles virus nucleo- and phosphoproteins form liquid-like phase-separated compartments that promote nucleocapsid assembly. Science Advances 6, eaaz7095 (2020).
9. Camacho-Zarco, et al. Molecular basis of host-adaptation interactions between influenza virus polymerase PB2 subunit and ANP32A. Nature Communications 11, 3656 (2020).
10. Camacho-Zarco, et al. NMR Provides Unique Insight into the Functional Dynamics and Interactions of Intrinsically Disordered Proteins. Chem. Rev. (2022)
11. Guseva, S. et al. Liquid–Liquid Phase Separation Modifies the Dynamic Properties of Intrinsically Disordered Proteins. J. Am. Chem. Soc. 145, 10548–10563 (2023).

The successful candidate will join a multi-disciplinary team investigating the physical role of highly dynamic proteins involved in viral replication, in particular SARS-CoV-2, influenza and measles. The project lies at the interface of biology, chemistry and physics and will combine state-of-the-art NMR spectroscopy with simulation, fluorescence spectroscopy and imaging, X-ray crystallography, cryo-electron microscopy and small angle scattering.
Capital of the French Alps, Grenoble is a world-renowned scientific hub with a strong international flavour. It is a pleasant city, situated at the foot of three mountain ranges offering many possibilities for cultural, outdoor and sporting activities throughout the year. Grenoble is close to the French riviera, Italy and Switzerland and is served by international airports and a high-speed rail network
Interested candidates (biochemists, chemists or biophysicists) should send a cv and motivation letter to martin.blackledge@ibs.fr

[CfPo] PhD position at Université Grenoble Alpes, France (UGA) and the Institut Laue-Langevin, France (ILL)

A PhD position co-financed by Université Grenoble Alpes, France (UGA) and the Institut Laue-Langevin, France (ILL) is available on the following subject:
"Conformation and function of proteins at homogeneous and nanostructured interfaces"

The immobilisation of proteins at interfaces is important to many medical, biomedical and biotechnological applications. However, the interaction of the proteins with the immobilising interface can have a detrimental effect on their activity, due to the surface-induced changes in their structure and mobility.
By combining different lab-based techniques such as electrical impedance spectroscopy, quartz crystal microbalance, microscopy, with equipment from large scale facilities (Neutron and X-ray Reflectometry, Small Angle Neutron and X-ray Scattering), we plan to study the

effect of the immobilization of a particular membrane protein, the sodium-hydrogen exchanger NhaA, which has relevant biotechnological applications.
The PhD student will be hosted in the TIMC laboratory (UGA) and at the Institut-Laue Langevin and jointly supervised by Dr. M. Maccarini (SyNaBi group at TIMC), Prof. D. Martin (SyNaBi group at TIMC) and Dr Ben Humphreys (ILL).

SyNaBi group at TIMC laboratory is a dynamic research team with a focussed thematic axis in biological engineering. Our primary objective is to conduct fundamental research to investigate the role of biological molecules (e.g., enzymes, proteins) in various applications, including lipid bilayers, biosensors, biomimetic cell systems, and drug delivery systems. Our research endeavours span from the nanoscale to the microscale and macroscale, enabling us to gain comprehensive insights into these complex systems. To achieve this multidimensional exploration, the SyNaBi team harnesses its core expertise in electrophysiology, biophysics, large-scale facililities (neutron and X-ray scattering), bioelectrochemistry, opto-acoustic intravital microscopy, biopolymers, drug delivery, and cell/molecular biology.
The Institut Laue-Langevin is an international research centre at the leading edge of neutron science and technology. As the world flagship centre for neutron science, the ILL provides scientists with a very high flux of neutrons feeding some 40 state-of-the-art instruments, which are constantly being developed and upgraded.

Expected profile and skills:
* Degree allowing enrolment for a PhD (such as MSc, Master 2 de Recherche, Laurea or equivalent) in physics, materials science, chemistry or closely related science
* The candidate should be able to work in a highly interdisciplinary environment.
* background in large scale facilities experiments (neutron and x-ray scattering), and knowledge computer programming (C++, Python) would be an advantage
* Ability in handling of biological materials would be an advantage

Working Conditions:
The successful candidate will be enrolled full-time in the doctoral school of UGA and based 50% at the ILL (Grenoble, France) and 50% at TIMC. Furthermore, a varied pedagogical training programme will be offered to the successful candidate throughout the 3-year PhD project.

Questions can be addressed to marco.maccarini@univ-grenoble-alpes.fr, donald.martin@univ-grenoble-alpes.fr or humphreys@ill.fr

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[CfPo] PhD position at the University of Strasbourg, France

The laboratory Membrane Biophysics and NMR at the University of Strasbourg has an opening for a PhD position starting 2024/2025 with the goal to investigate the lipid-driven peptide interactions within membranes. The increasing spread of multiresistant pathogens inside and outside hospitals becomes a dangerous threat to human health. Immediate action is needed to overcome this problem and this project aims to better understand their mechanisms of action and how combination therapies should be designed to increase activity and specificity. Antimicrobial peptides are capable of self-assembling into various supramolecular arrangements along the membrane surface and these interactions are strongly dependent on the membrane lipid composition pointing to an important role in biological processes. Related fundamental properties are also important in the formation of lipoprotein nanoparticles which are key in cardiovascular diseases. The project aims at understanding the fundamental principles of lipid-driven interactions thus that new compounds of medical interest can be developed. The project is suitable for chemists, physicists, physical chemists or biochemists.
Candidates should be highly motivated to learn and apply a selection of biophysical techniques such as optical spectroscopies, NMR and/or the (bio)chemical production of peptides. S/he should be interested in working in a highly interdisciplinary and international environment. The position is funded by a three-year grant from the International Center of Frontier Research in Chemistry and the Region Grand-Est. Strasbourg is a very nice city on the French side of the Rhine river, at the border to Germany, with easy access to nearby mountains (Vosges, Black Forrest, Alps).
Candidates should send their CV and contact information for up to three references to:

Prof. Burkhard Bechinger : bechinger@unistra.fr
Web Sites: https://rmnmc.chimie.unistra.fr
https://fondation-lehn.fr/en/

[CS/WB] NERKA9 School

Dear colleagues ,
We are approaching the deadline for the NERKA9 application. Please take note: we have also arranged again very economical accommodation for our participants (21€ double and 23€ triple room half board) + we expect additional sponsors for fellowships.
Please distribute the info :
https://www.linkedin.com/in/pavle-andjus-3a429917/recent-activity/all/
OR https://clm.bio.bg.ac.rs/2024/01/18/nerka9/
We will also be able to wait for some time after the deadline.
Call here and/or apply!
See you,
Pavle