PhD course in Physics and Chemistry of Biological Systems
Selection for the conferment of ERC Funded Fellowship on Hydrogen-bond Networks as Optical Probes (HyBOP)
ACADEMIC YEAR 2023/24

This is a highly interdisciplinary and ambitious project at the boundary between physics, chemistry and biology funded by an ERC grant and hosted at the International Center of Theoretical Physics (ICTP) that seeks to unravel the origins of luminescence in organic materials. The project aims to advance existing notions of our textbook understanding of the mechanism by which biological materials glow, with special focus on the role of water. This will be achieved with the help of advanced simulation techniques and modern tools of data science and machine-learning. The project will involve high-level international collaborations with leading experimentalists in the field as well as theoreticians from SISSA. The long-term vision is to design an entirely new class of luminescent probes for use in medical diagnostics.

Research Fields: Physics, Chemical-Physics, Data-Science, Bio-luminescence, Machine-Learning, Electronic Structure

Amount of the fellowship: € 1,400,00 net per month (such amount includes a contribution towards rent expenses and does not foresee social security coverage – see below)

Financing Body: International Centre for Theoretical Physics (ICTP) though European Research Council (ERC) Project on Hydrogen-bond Networks as Optical Probes.

Duration of the programme: 4 years (01.10.2023 – 30.09.2027)

● Other benefits:

  • private health insurance;
  • a contribution towards a social security plan amounting to 10% of the salary;
  • special allowances for family members;
  • a travel grant;
  • a contribution towards removal expenses;
  • maternal/paternal leave

● Requirements:

SISSA welcomes applications from young candidates who have completed, or are going to complete, their undergraduate studies, with a strong interest in research.

Candidates, without limitations of age and nationality, must be in possession of a university degree (Master of Science/ Laurea Magistrale) in Physics, Chemistry, Engineering.
• **Online application:**

An online application must be filled and sent using the procedure available at the page [https://pica.cineca.it/sissa/tipologia/dottorato](https://pica.cineca.it/sissa/tipologia/dottorato) by **13.00 hrs of 20th March 2023** (Italian time).

Candidates should upload the following documents in pdf format:
- curriculum vitae;
- a certificate of University examinations taken (with marks);
- a final degree certificate;
- If, at the time of application, candidates should not be yet in possession of a degree certificate, they can submit it at the time of the examination. *European Union candidates can submit a personal declaration instead of the aforementioned certificates.*
- a copy of the diploma thesis (if any), or its abstract.

At the end of the procedure, candidates will have to indicate the names and email addresses of two professors that will receive an email requesting to send a recommendation letter through the same online procedure **by 13.00 hrs. of 22th March 2023** (Italian time).

The candidate will then have to print out the admission request form, sign it and send it through the same online procedure.

Candidates with disabilities certified according to the law n. 104/1992 and subsequent modifications, and those diagnosed with Specific Learning Disorder certified according to the law n. 170/2010 and to the D.M. n. 5669 dated 12/07/2011, can report their needs together with the submission of the admission application, within the deadline set by this announcement.

• **Selection Procedure:**

After the deadline of the announcement, the Selection Committee, which will be composed of at least three (3) SBP Faculty Members of SISSA one (1) ICTP Faculty, and one external, will evaluate the documentation produced by the candidates (*curriculum vitae*, letters of recommendation, letter of intent, etc.). Candidates who have obtained a minimum score of 7/10 will be invited to take the **written test via Zoom on 3rd April 2023**. Those who will obtain a minimum mark of 28/40 in the written test, will be admitted to the **interview which will be held on 4th – 5th April 2023 via Zoom**, with scheduled times that will be communicated later on.

For the interview, the candidate should be reachable at the address indicated in the application, at the time communicated by SISSA through email.

Candidates should show an ID document for identification at the beginning of the interview. The absence of a contact email in the application or of a valid ID during the interview, imply the exclusion from the competition.

To be considered eligible, candidates must pass all the phases (academic qualifications, written test, and interview) with a minimum mark of 7/10 or equivalent.
• **Admission:**

The admitted candidate will be notified by email and will be asked to be present at SISSA on 2\textsuperscript{nd} October 2023, for the registration.

**Failure to do so without a valid reason will result in the loss of the fellowship awarded.**

In order to be enrolled and to be awarded the fellowship, admitted candidates must pay a "Regional Tax" of the amount of € 120,00 - € 160,00 per year. Information can be retrieved at [http://www.ardiss.fvg.it/](http://www.ardiss.fvg.it/).

For information about rights and duties of the doctoral students please consult the Teaching Regulations of the PhD courses of SISSA issued with D.D. 750 of 31.10.2022 at this page.

As per Legislative Decree 30.06.2003 n.196, and of the European Regulation 2016/679 (General Data Protection Regulation), we inform that all data given to this Administration will be processed only for purposes related to and instrumental to the existing contract, in compliance with the provisions in force.

The Director
Prof. Andrea Romanino
(digitally signed)