

**Research fellowship on “Continuous thermal monitoring with wearable mid-Infrared sensors” -  
Università Ca' Foscari Venezia**

(Italian law 30 December 2010, n.240, art. 22 and subsequent amendments and additions)

The present document in English is to be considered as a mere summary of the main provisions of the notice of competition which is available in Italian at the following [link](#) The text in Italian is the official text of the notice of competition for all legal intents and purposes and, in the event of non-conformity with the present document, it shall prevail.

**Description**

The Department of Molecular Sciences and Nanosystems at Università Ca' Foscari Venezia invites applications for a fellowship lasting 12 months titled “Graphene-based, wearable mid-infrared sensors”, SSD: FIS/01, project PRIN 2022 titled “Continuous thermal monitoring with wearable mid-Infrared sensors” cod. P2022AHXE5, CUP H53D23000800006, tutor and principal investigator: dr. Domenic De Fazio.

The fellowship is intended to provide the successful candidate with the opportunity to pursue his/her own research while benefiting from the range of expertise at Università Ca' Foscari Venezia.

**Abstract:**

This project proposes a novel approach to continuous body temperature monitoring, a crucial aspect of human health assessment. The project aims to develop wearable, stitchable optical temperature sensors that can monitor skin temperature by harvesting the mid-infrared (mIR) radiation emitted by the human body. These sensors use large-area graphene as the active material, allowing for scalably producing skin-like, flexible, non-invasive thermometers.

These devices can be applied to multiple locations on the skin, reducing discomfort and enhancing system efficiency and portability. The project involves three research units: Ca' Foscari University of Venice, Consiglio Nazionale delle Ricerche and Polytechnic University of Turin, each contributing their unique expertise in areas such as mIR photodetector design, graphene mIR absorption analysis, and biocompatibility testing.

The technology developed through this project is expected to advance medical diagnostics through continuous body temperature monitoring significantly. It also has potential applications in the Internet-of-Things and wearable biometric platforms, where system accuracy, reliability, and low Size, Weight, and Power (SWaP) are critical.

Tasks will include:

- Graphene characterization, transfer
- Biocompatibility measurements
- Optoelectronic measurements
- Flexibility measurements
- Cooperation with the two other units involved

In particular, the candidate will work within WP2 of the project (Biocompatibility)

**Who can apply**

Prospective candidates are expected to hold a **Master Degree in the field of experimental physics, materials engineering, electronics** (or equivalent) or equivalent qualification obtained

abroad and professional scientific curriculum suitable for carrying out research activities.

Ca' Foscari encourages applications from researchers with positive evaluation in all the criteria in individual proposals such as Marie Skłodowska Curie Actions - Individual Fellowships/ERC Starting Grants/FIRB (Italian Fund for basic research investments)/SIR (Scientific Young Independence Research) or similar.

Researchers having successfully completed Marie Skłodowska Curie Actions - Individual Fellowships/ERC Starting Grants/FIRB (Italian Fund for basic research investments)/SIR (Scientific Young Independence Research) or similar funded projects are warmly encouraged to apply.

**The following qualifications are considered as evaluation criteria:**

- a. PhD graduation;
- b. the completion of attendance of a PhD course pending the awarding of the title;
- c. specialization diplomas and certificates of attendance of post-graduate specialization courses, obtained both in Italy and abroad, the carrying out of documented research activities at public and private entities with contracts, scholarships or assignments both in Italy and abroad;
- d. previous experience gained in topics similar to those of the tender.

**Duration of contract: 12 months**, approximately starting: in **April 2024**.

**Stipend:** The research fellowship amounts to **Euro € 24.300,00** per year gross of the recipient, net of the expenses to be sustained by the Provider.

**Deadline for submission of applications: 29<sup>h</sup> February 2024, at 12.00 noon.**

**How to apply:**

Candidates shall submit:

1. The application form;
2. A motivation letter (max 1 page) along with their CV in European format, duly dated and signed, both to enclosed as a one single.pdf file ([link](#)); a declaration must be appended in the footnote of the curriculum, pursuant to the Italian DPR 445/2000 and subsequent amendments and additions, that the information provided corresponds to the truth. Moreover the candidates have to consent to the use of their personal data for the purposes of this selection procedure pursuant to the Italian Legislative Decree 196/2003 and to the EU Regulations 2016/679;
3. The attachments called “obligations and understanding” and “participation and compatibility”;
4. All documents, qualifications and publications relevant for the selection procedure (please, see the notice - [link](#));
5. A copy of a valid identity document (either Identity Card or Passport);
6. (If available) Evaluation Summary Reports of Marie Skłodowska Curie Actions - Individual Fellowships/ ERC Starting Grants/FIRB (Italian Fund for basic research investments)/SIR (Scientific Young Independence Research) individual proposals having passed all the evaluation thresholds;
7. (If available) Details of Marie Skłodowska Curie Actions - Individual Fellowships, ERC Starting Grants, FIRB (Italian Fund for basic research investments)/ SIR Scientific Young Independence Research funded projects;
8. Declaration on availability to held the interview in remote ([Link](#)) to be send via email at the following address: [ricerca.dsmn@unive.it](mailto:ricerca.dsmn@unive.it)

All the schemes of the quoted documentation are available on the website ([link](#)).

**Incomplete applications will be rejected.**

### **How to submit your application**

Applications should be submitted by the online procedure, available on this link:

<https://apps.unive.it/domandeconcorso-en/accesso/dsmn-prinpnrr22defazioar2>

The candidate, after the uploading, will receive a submission number and an e-mail acknowledging receipt of his/her application.

The candidate if necessary could access the procedures for updating any data and materials by the link provided by the e-mail, in any case any updates must be made no later than the deadline 29<sup>th</sup> February 2024, at 12.00 noon.

**If you don't have an Italian tax identification code, please click on "Calculate Italian tax identification code (codice fiscale)".**

Please note that the University can be contacted for any support needs by the candidate until 24 hours prior to the deadline.

Please note that in case of an high number of applications and / or weight of the materials loaded by the candidates the system might become slower, Therefore it is suggested not to start the process close to the deadline.

**NB:** the University does not take on responsibility for wrong or late communication of addresses, nor for any communication problem not depending on the University.

### **Topics of the interview:**

- Competence and previous experience in the topics described in the announcement;
- Assessment of knowledge of the foreign language English by carrying out part of the interview in English

### **Evaluation**

Up to 100 points, specifically:

For qualifications, publications and possible tests, from 0 to 60;

For interview, from 0 to 40.

### **Selection procedure**

**The interview will be on 15/03/2024 at 10:00 a.m.**

**by remote at the link:**

[meet.google.com/gvg-cyxu-wqu](https://meet.google.com/gvg-cyxu-wqu)

## Information and contacts

Candidates may find further details about the application process and the research project in the official call published on the following ([link](#))

For further information please contact the Research Office, email: [ricerca.dsmn@unive.it](mailto:ricerca.dsmn@unive.it), Ph: 0412348633/8514.

Il Direttore del Dipartimento  
di Scienze Molecolari e Nanosistemi  
Prof. Maurizio Selva  
f.to digitalmente ex art.24 Dlgs 82/2005 (CAD) e ss.mm.ii.

VISTO La responsabile del procedimento  
La Segretaria del Dipartimento di Scienze Molecolari e Nanosistemi  
Sonia Barizza: [barizza@unive.it](mailto:barizza@unive.it) Telefono: 041-2348535