



# EXBRINER



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## Open call for a Marie Skłodowska-Curie PhD fellowship in Experimental Condensed Matter Physics at University of L'Aquila, Italy (deadline January, 25<sup>th</sup> 2023)

within EU Marie Skłodowska-Curie Actions Doctoral Network (MSCA-DN)

**EXBRINER Grant agreement 101072449** <https://cordis.europa.eu/project/id/101072449>

EXBRINER website: <https://exbriner.unical.it/> (*Individual Research Project n. 2*)

### RESEARCH PROJECT & RESPONSABILITIES

The Marie Skłodowska-Curie Actions (MSCA)-Doctoral Network EXBRINER project aims to develop a new technological and interdisciplinary platform for the valorization of hypersaline brines produced by desalination plants through photothermal membrane crystallization. The project involves seven European universities, three research centers, and four industrial partners, with mandatory secondments in two academic centers and one industrial center for each recruited MSCA fellow. **The University of L'Aquila will contribute with an activity in the field of experimental condensed matter physics**, which will include (i) the development of functional inks based on nanosheets of two-dimensional materials and quantum materials with efficient light-to-heat conversion and (ii) their characterization with surface-science spectroscopies, using *in situ* and *operando* spectromicroscopic techniques, also based on synchrotron radiation.

The doctoral candidate will attend: (i) laboratory-based *Training through Research*; (ii) advanced scientific and technical courses delivered at Network Meetings and EXBRINER Schools; (iii) soft and transferable skill courses; (iv) courses and events from the Doctoral School of the Dep. Physical and Chemical Sciences (DSFC) of the University of L'Aquila.

As a MSCA fellow, the doctoral candidate is also expected to contribute in the dissemination of the PhD Project's results in Conferences and publications in high-rank international scientific journals.

### ORGANISATION AND SUPERVISION

The doctoral candidate will be recruited at the University of L'Aquila. Founded in 1596 and located in L'Aquila, administrative center of the Abruzzo Region, University of L'Aquila (UNIVAQ) is a public teaching & research institution offering a full range of academic programs, with 19,000 enrolled students. L'Aquila is located at only 100 km from Rome (capital city of Italy), whose center can be reached in only 75 minutes by car. The main part of the PhD research (30 months) will be performed at Department of Physical and Chemical Sciences (DSFC) of University of L'Aquila, under the supervision of **Prof. Antonio Politano**

([antonio.politano@univaq.it](mailto:antonio.politano@univaq.it)). See the group webpages on ResearchGate and Google Scholar <https://www.researchgate.net/profile/Antonio-Politano> (ResearchGate) <https://scholar.google.com/citations?user=pTRV048AAAAJ&hl=en> (Google Scholar)  
See also the Twitter profile <https://twitter.com/Surface2d>

The PhD project (36 months) includes two academic secondments of 2 months: at Italian Institute of Technology (IIT), Department of Smart Materials in Genoa (Italy), under the supervision of Dr. Despina Fragouli, and at Aalborg University in Aalborg (Denmark), under the supervision of Prof. Cejna Anna Quist-Jensen, with 2 months of industrial secondment at the company GVS S.p.A. (near Bologna, Italy).

## REQUIREMENTS

- Master's degree in Physics or related subjects
- An excellent expertise in Surface Science and, more generally, in two-dimensional and topological materials, liquid-phase exfoliation, nanoscience, synchrotron light, and electron spectroscopies (in particular, XPS, EELS, ARPES), for both *in situ* experiments in ultra-high vacuum (for which vacuum technology skills will be required), and *operando* conditions
- Knowledge of software for advanced data processing
- Aptitude for teamwork
- Excellent communication and social skills
- Fluency in English – written and oral

Strict eligibility requirements for a Doctoral Candidate position in a MSCA-DN program include:

- Not having resided, worked, or studied in Italy for more than 12 months in the 3 years prior to the start date of the PhD research. Italian citizens can apply only if they respect the mobility requirement.
- Not having been awarded a doctorate.

## CONDITIONS OF EMPLOYMENT

The successful candidate will receive a **gross living allowance per year** of € 39739.20 (including income tax and retirement pension contribution). This amount is subject to INPS (Social Security Service) contributions amounting to 35.03 % for the year 2022 of which 11.677 % is to be paid by the grant beneficiary. The successful candidate will also receive a **mobility allowance of € 7200.00 per year** and a **family allowance** (depending on family status at the date of recruitment) of € 5940.00 per year.

**Preferred starting date** : May, 2<sup>nd</sup> 2023

## APPLICATION PROCEDURE – DEADLINE JANUARY, 25<sup>th</sup> 2023

To apply for the position, fill the application form at <https://pica.cineca.it/univaq/dott38-sfc-exbriner/> before the deadline of **January, 25<sup>th</sup> 2023**, by enclosing the following documents:

- i) **Curriculum Vitae**, in English, detailing academic studies, professional career, publications and other relevant achievements;

- ii) The candidate must indicate the name of two professors with their e-mail address for a **recommandation letter**. The referee will receive an e-mail with the instruction to write the recommendation letter directly online;
- iii) Candidates holding **Degrees in EU countries** must provide a **self-certification concerning their Bachelor-level Degree and Master-level Degree** with a list of exams taken and marks obtained. If the candidate has a foreign Degree (Bachelor-level Degree and Master-level Degree) obtained in a non-EU country, a copy of the Degree certification obtained with a transcript of records of the exams taken and an English translation provided by the applicant; any other documentation deemed useful for the qualification assessment (Diploma Supplement, diploma translated and legalized by the competent Italian Diplomatic Authorities in the country where the degree has been awarded, declaration of value on site if already in possession, etc...);
- iv) A **Summary of their Master Degree thesis** (Max 2 pag.);
- v) Signed **Letter of Motivation**, in English, covering the following aspects: reasons for applying to the PhD position, skills and abilities that make the applicant a good candidate, motivations to carry out research abroad, professional interests and expectations. The letter should also highlight the coherence between the candidate's profile and the positions referred to in this announcement;
- v) Any **publications** deemed appropriate for evaluation;
- vi) Other **qualifications** deemed appropriate for evaluation;
- vii) Concise **recognition on the state-of-the-art** (3000-4000 characters), in English, on the topic addressed by the Individual Research Project;
- viii) Copy of the first two and last two pages of the **Passport** or – for EU citizens - of the **Identity Card**.

## RANKING OF CANDIDATES

**Evaluation of documentation:** February, 2<sup>nd</sup> 2023 (*max 40/100*)

**Interview:** February 3<sup>rd</sup> 2023 (only online and only for candidates with a score equal or higher than 30 for the attached documentation). The interview be held on the following subjects: **Surface Science, two-dimensional and topological materials, surface plasmons, electron spectroscopies** (*max score 60/100*)

## DETAILED INFORMATION

**See the extended version of the job version at UNIVAQ website:**

**[https://www.univaq.it/include/utilities/blob.php?table=bando\\_dottorato&id=53&item=bando\\_en](https://www.univaq.it/include/utilities/blob.php?table=bando_dottorato&id=53&item=bando_en)** (**[urly.it/3rk0-](http://urly.it/3rk0-)**)

**Application form at <https://pica.cineca.it/univaq/dott38-sfc-exbriner/>**

**Contact person: prof. Antonio Politano ([antonio.politano@univaq.it](mailto:antonio.politano@univaq.it))**