Job Description:

Title:

Ph.D. position in the EU funded project H2020-MSCA-ITN SWATNET "Space Weather Awareness Training Network" (GA n. 955620)

ORGANISATION/COMPANY	University of Rome Tor "Vergata" (Italy)
RESEARCH FIELD	Space Weather / Solar Physics
RESEARCHER PROFILE	Early Stage Researcher (ESR)
APPLICATION DEADLINE	May 17, 2021 (23:59 Rome Time)
LOCATION	Rome – Italy
TYPE OF CONTRACT	Temporary (36-months fixed duration)
JOB STATUS	Full Time
HOURS PER WEEK	40
OFFER STARTING DATE	01/09/2021
EU RESEARCH FRAMEWORK PROGRAMME	H2020 - Marie Skłodowska-Curie Actions – Innovative Training Network
MARIE CURIE GRANT AGREEMENT NUMBER	955620
ENROLLMENT IN THE PHD SCHOOL OF:	ASTRONOMY, ASTROPHYSICS AND SPACE SCIENCE
SALARY INFORMATION:	APPROX. 2.500 €/MONTH, PLUS MOBILITY AND FAMILY ALLOWANCES SUBJECT TO TERMS AND CONDITIONS.

OFFER DESCRIPTION

The University of Rome Tor "Vergata" (Italy), Department of Physics, is seeking a highly motivated and mobile candidate with a strong academic record holding at least a two-year Master's Degree in Physics and/or Astronomy, fluency in English and some demonstrated subject knowledge of either Solar Physics, Space Weather or Astrophysics (or all of them). Robust programming skills (especially

in Python) and knowledge of relevant Machine Learning approaches will be considered an added relevant feature of the candidate.

The selected candidate will pursue a Double Ph.D. as Early Stage Researcher (ESR), within the EU-funded H2020-MSCA-ITN Project "Space Weather Awareness Training Network" (acronym SWATNet – GA n. 955620) www.swatnet.eu

The project's objective is to foster breakthroughs in our physical understanding of key agents of Space Weather at Earth. The Early Stage Researcher (ESR) will contribute to ambitious and carefully planned research, outreach, impact, and dissemination activities benefiting from the expertise of world-leading senior academics.

The ESR will be doubly enrolled in the University of Rome Tor Vergata Doctoral Program in **Astronomy, Astrophysics and Space Science** and in the University of Coimbra Doctoral Program in Physics (branch Astrophysics) and will work within the Department of Physics, Faculty of Mathematics, Physics and Natural Sciences of the University of Rome Tor Vergata, on the Ph.D. research project "Forecasting Solar Activity with Deep Learning".

The Early Stage Researcher (ESR) will work under the joint main supervision of:

Prof. Dario Del Moro and Prof. Francesco Berrilli at the University of Rome "Tor Vergata".

and

João Manuel de Morais Barros Fernandes, Assistant Professor with Habilitation and Maria Teresa de Abrunhosa Barata, Researcher at the University of Coimbra

The ESR will be offered an international, interdisciplinary and intersectoral training, and will include a structured mobility to up 10 months in the Universities and Partner Organisations of the Consortium for the entire project duration that will include:

- **The University of Coimbra,** Department of Physics and Geophysical and Astronomical Observatory (Portugal). - 10 months of resident work with co-supervisors Prof. João Fernandes and Teresa Barata.

- **Gyula Bay Zoltán Solar Observatory, Gyula,** (Hungary) - 1 months hands on training in solar observation and data acquisition.

- **NEXT, Ingegneria dei sistemi, Rome,** (Italy) – 3 months internship on coding, software development practices and data management and analysis.

The offered position is available with a fixed starting date in September 2021 for a maximum duration of 36 months with a full-time commitment to work exclusively under the action.

Applicants may be of any nationality and shall, at the time of recruitment by the host organization (September 2021), be in the first four years (full-time equivalent research experience) of his or her research careers and have not been awarded a doctoral degree.

ESR shall not have resided or carried out his or her main activity (work, studies, etc.) in Italy for more than 12 months in the 3 years immediately prior to the reference date.

Benefits

The ESR will be part of a community of ESRs based in 10 SWATNet partner universities and will benefit from an international and interdisciplinary training programme featuring local, ITN-wide, and external activities with an exposure to intersectoral and international working environments. Training will take place through Advanced Training Courses, Summer Schools, and a topical Workshops organized by ITN partners across Europe (Belgium, Finland, Greece, Hungary, Italy, Poland, Portugal, UK).

Candidates will get a very attractive salary plus an allowances package in accordance with the Marie Skłodowska-Curie Actions (MSCA) rules and the personal circumstances of the applicant.

The gross salary will be approximately 2.500 €/month, plus a mobility allowance of 600 €/month and a family allowance of 500 €/month, subject to terms and conditions.

Eligibility criteria

To be eligible, the candidate:

- must hold a 2-year **Master's Degree or** equivalent qualifications (candidates with pending Master's degrees will be considered, but the award will be conditioned on them being awarded the title by end of July 2021). Candidates should ideally possess a Master's degree in Physics and/or Astronomy or a different degree provided that allows them to enlist to the Ph.D. programs of both University of Rome Tor Vergata and Coimbra University (applications from candidates who already possess a doctoral degree cannot be considered);
- must be **in the first four years of her/his research career;**
- must **not have resided or carried out their main activity (work, studies, etc.) in Italy for more than 12 months** in the 3 years immediately before the recruitment date;
- must be willing to live in the Host Institution country during the 3 years appointment and travel to the other Universities and Partner Organisations of the network for training activities and secondments (according to the details provided above in the offer description);
- must not hold a Ph.D.;
- must have appropriate written and oral communication skills in English.

The ideal candidate should have:

Essential

- Master's degree in Physics and/or in Astronomy
- Basic understanding of the Solar Physics and/or Space Weather, sustainability issues at the global level
- High level of quantitative and analytical ability
- Thorough understanding and direct relevant experience of research methods
- Ability to communicate complex information clearly
- Ability to assess resource requirements and use the resources effectively
- Excellent programming skills
- Ability to work as part of a team and work independently using own initiative
- Fluency in English (both written and oral)

Desirable

Good knowledge of widely used Astrophysical Python libraries (e.g. numpy, astropy, sunpy, …)

Good knowledge of widely used Machine Learning Python libraries (e.g. astro-ml, sklearn, …)

Selection process

The evaluation and selection procedure is organized in 3 steps:

STEP 1: ELIGIBILITY CHECK

STEP 2: EVALUATION OF THE FILE

(CV, letters of reference, etc.)

STEP 3: INTERVIEW

(short-listed candidates)

Website for the Application: https://delphi.uniroma2.it/totem/jsp/index.jsp?language=EN

Candidates should submit an "online application form" (available at: https://delphi.uniroma2.it/totem/jsp/index.jsp?language=EN), by **May 17, 2021** 23:59 Rome Time, the following documents in digital form (within a single zipped attachment):

- a full CV (with the relevant details for checking the eligibility criteria)
- a copy of Master's and Bachelor's Degree diploma with the transcript of records and final marks (if available, the diploma supplement)
- a copy of the passport
- two reference contacts who agree on providing reference letters for the candidate
- list of publications (if available)
- Motivation Letter. An account of the activities of significance to the vacancy (max 2 pages)

Only documents in English will be accepted.

The deadline for application is **May 17, 2021** (h. 23:59 Rome Time).

For a possible deadline extension check online at: http://dottorati.uniroma2.it/news.aspx?id_news=19

Applications failing to include the requested documentation or submitted after the deadline will not be considered.

The University of Rome "Tor Vergata" is an equal opportunities employer, committed to promoting equality, diversity and fairness irrespective of age, disability, gender, pregnancy or marital status, race, religion or belief, sexual orientation or gender identity. The University of Rome "Tor Vergata" unit welcomes applications from currently underrepresented groups and will ensure that equal opportunities are guaranteed to each applicant during the selection procedure.

Candidates will be evaluated according to the eligibility criteria and the following criteria for the scientific evaluation:

- Educational track records
- Scientific quality of the CV
- Expected individual impact and benefit to the researcher and to the project
- Previous experiences in the subject areas relevant to the SWATNet research programme.

The eligibility and evaluation of the file will take place in June/July 2021.

Shortlisted candidates will be invited for a web interview (Skype or similar) that will take place in July/August 2021 and positions will be offered to candidates following the approval by the Selection Committee.

Websites and contacts for additional job details

SWATNet website: www.swatnet.eu

http://dottorati.uniroma2.it/corso.aspx?id_corso=117

http://dottorati.uniroma2.it/news.aspx?id_news=19

Contacts of the supervisors:

Prof. Dario Del Moro email: dario.delmoro@roma2.infn.it

Prof. João Manuel de Morais Barros Fernandes email: jmfernan@mat.uc.pt