



Institute of Accelerating Systems and  
Applications (IASA)



## **CALL FOR APPLICATIONS for a Marie Skłodowska-Curie Early-Stage Researcher position and Ph.D in Physics at the Institute of Accelerating Systems and Applications, University of Athens, (Greece) with the AMVA4NewPhysics ITN (H2020-MSCA-ITN-2015, proposal 675440)**

The network includes 13 other institutions:

- Beneficiary partners: The Italian National Institute for Nuclear Physics research (INFN) which is the Coordinator node, Università di Padova; University of Oxford; Laboratório de Instrumentação e Física Experimental de Partículas at Lisbon; Blaise Pascal University; Université Catholique de Louvain; Centre Europeen pour la Recherche Nucleaire - CERN;
- Other partners: University of California Irvine, Ecole Polytechnique Fédérale de Lausanne, B12-consulting, SDG group, Yandex, and Mathworks.

The beneficiary partners will be hiring a total of ten early-stage researchers (ESR) to study the Higgs boson and search for new physics at the Large Hadron Collider, employing advanced statistical learning tools.

### **Description**

The Institute of Accelerating Systems and applications (IASA) at the National and Kapodistrian University of Athens (NKUA), Greece offers **one** ESR position in the network. The selected candidate will be enrolled in the three-year Ph.D. program offered by the Department of Physics of the University of Athens. Besides following mandatory courses of the PhD programme, if deemed necessary, the ESR will participate in the research program of AMVA4NewPhysics, performing data analysis in collaboration with members of the CMS experiment from IASA and the University of Athens. The research topic envisioned for the ESR, who will be hired with a 30-month full-time contract at IASA, with the option of an additional 6 months financed solely by NKUA/IASA, focuses on developing algorithms for signature-specific new physics searches in Run II with CMS data. The NKUA group on CMS is currently active in searches for Supersymmetry/Dark matter and also Exotic new physics.

AMVA4NewPhysics foresees a very rich training programme for the ESR, which includes the participation to several international doctoral schools, workshops, and conferences, as well as visiting periods to CERN and to other European institutions belonging to the Network, plus a three-month secondment at a non-academic institution, attending to a stage centred on industry applications of Machine Learning tools.

In particular, this position envisions two months at the University of Padova (INFN) physics and statistical science department (months 16 and 17), one month at Université Blaise Pascal Clermont-Ferrand II (month 24) to document the report on application of statistical learning methods for model dependent and model-independent searches for new Physics, three months (months 29-13) of secondment in SDG Consulting S.p.A., Milano, Italy to work on applications of topological and geometric multi-scale analysis, and two months at CERN (near the end) to interact with the CMS Exotica physics group and finalize the analysis of Run II data.

We strongly encourage applications by female students and researchers as AMVA4NewPhysics applies affirmative-action measures to ensure gender equality in the recruitment process.

## Conditions

The gross salary amounts to euro 2883 per month; this will be subject to insurance and tax withholdings (depending on the candidate's profile). In addition, a gross mobility allowance of 600 euro per month is provided for, as well as a gross family allowance of euro 250 per month if applicable.

All expenses related to travel to schools, workshops, and network-organized events, will be planned and sustained by the network. The ESR will be provided with office space at IASA, and access to a cluster of computers for his or her research work.

## Eligibility criteria

There are strict eligibility requirements for the ESR positions in MSCA-ITN. Please ensure to be qualified before applying, as ineligible candidates cannot be considered.

- Applicants should **not** have resided or performed their main activity (work, studies, etc) in Greece for more than 12 months in the period December 1<sup>st</sup>, 2013 to November 30<sup>th</sup>, 2016 (short stays such as holidays are not taken into account).

- Applicants should be in the first four (4) years (full-time equivalent) of their research careers and not yet have been awarded a doctorate. This four-year period is measured from the date of obtaining the degree, which would formally entitle to embark on a doctorate.

- **At the time of hiring** applicants must have acquired a first degree in Physics (equivalent to a BSc), and a graduate degree equivalent to a MSc, formally enabling them to embark in a doctorate program in the country where the degree was obtained or in Greece.

## How to apply

Applications will be accepted until the position is filled. For full consideration, applications must be received by Dec 23, 2016 to the email address [admin3@iasa.gr](mailto:admin3@iasa.gr) (Ms. Nafsika Zarife) as follows:

1) an email with an attached zip folder including:

- A **signed** application form filled according to the format available at

[http://www.pd.infn.it/AMVA4NewPhysics/IASA\\_application\\_form.pdf](http://www.pd.infn.it/AMVA4NewPhysics/IASA_application_form.pdf) (also available in Word document format at [http://www.pd.infn.it/AMVA4NewPhysics/IASA\\_application\\_form.doc](http://www.pd.infn.it/AMVA4NewPhysics/IASA_application_form.doc) )

- A scanned copy of a valid identification document (Passport or ID card)

- A copy of education certificates and transcripts of records

- A copy of the degree thesis and publications (if any), or hyperlinks to pdf files of those documents

Subject of the email should be: FIRST NAME FAMILY NAME APPLICATION (e.g. "JOHN DOE APPLICATION")

The total size of emails to the above address cannot exceed 10 megabytes (MB). If the provided material does not fit in 10 MB, candidates should submit it in multiple emails.

2) Two letters of recommendation must be sent to the above address by the same deadline, in a separate email directly by the referees of choice of the candidate. Subject of the email should be: FIRST NAME FAMILY NAME LETTER OF REFERENCE (e.g. "JOHN DOE LETTER OF REFERENCE")

### **Selection criteria**

The ESR will be selected on the basis of the following criteria (in random order):

- Recommendation letters
- Topic, content, and score of evaluation of the degree thesis
- Curriculum of studies and research, as detailed in the application form
- Publications (if any)
- Colloquium

### **Deadline and timeline**

1. A selection board will evaluate the applications and make a pre-selection of the most promising candidates based on the requirements above
2. The preselected applicants will be contacted to arrange for a colloquium, which will be held by videoconference.
3. Candidates will be notified of their ranking on the week after the end of all scheduled colloquia. The best scoring candidate available to accept the position will be chosen.
4. **The selected ESR will be required to move to IASA, Athens or its vicinities, starting in Jan 2017 or soon after, to formally take service at IASA and register in the PhD program of the University of Athens, Greece, potentially also taking graduate-level courses, depending on the curriculum followed in previous degrees.**

### **Further information and contact**

Applicants should follow the #AMVA4NP twitter hashtag and the web site of the network at <http://www.pd.infn.it/AMVA4NewPhysics/index.html> for further announcements and notices. For clarifications please contact [admin3@iasa.gr](mailto:admin3@iasa.gr).