HELLENIC REPUBLIC
MINISTRY OF EDUCATION, RESEARCH AND RELIGIOUS AFFAIRS
GENERAL SECRETARIAT FOR RESEARCH AND TECHNOLOGY

INFORMATICS DEVELOPMENT AGENCY

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FOUNDATION FOR RESEARCH AND TECHNOLOGY – HELLAS
INSTITUTE OF ELECTRONIC STRUCTURE AND LASER

Deadline and start date correction

One post-doc position in the project

DOMINION

"Deciphering the workings of molecule intercalated iron chalcogenides"

(Call: Long Range Broad Agency Announcement (BAA) for Navy and Marine Corps Science and Technology, ONR BAA Announcement #N00014-17-S-B001, Award No N62909-17-1-2126)

Ref.: 15

Heraklion 11/1/2019

The Institute of Electronic Structure and Laser (IESL) of the Foundation for Research and Technology - Hellas (FORTH),* in the frame of the project DOMINION, funded under the Office of Naval Research (ONR) Global, is seeking to recruit one (1) post-doctoral researcher.

Job Description

DOMINION provides an intimate engagement of syntheses and characterisation for a wide range of layered iron-based chalcogenide compounds. The challenges set out here will be tackled through a *cross-disciplinary*, collaborative initiative between European (Foundation for Research and Technology - Hellas, Greece & Warsaw University of Technology, Poland) and US DOE scientists (Brookhaven National Lab, NY & National High Magnetic Field Lab, FL). A comprehensive range of research activities, engaging young researchers (PhD and post-doc levels) with senior scientists, is organized to facilitate a resource-sharing culture and tackle open questions.

Understanding superconductivity in the materials of interest requires tackling the subtle stoichiometry necessitated for a sizeable superconducting critical temperature (T_c). The team will develop low-temperature chemical routes (Department of Inorganic Chemistry and Solid State Technology, WUT; contact: Dr A. Krzton-Maziopa), which in conjunction with the physical properties (Institute of Electronic Structure and Laser, FORTH; contact: Dr. A. Lappas) of the acquired materials will allow parameterising the conditions leading to T_c enhancement.

The successful post-doctoral candidate will focus on the fundamental physics and chemistry of inter-atomic interactions of solid-state iron-chalcogenide magnets and superconductors, made up of functional molecular components with nanoscale dimensions. For this, user-facility photon and neutron science US

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DOE labs, with their advanced analytical instrumentation, optimized for high -flux/ -resolution/ -data throughput, unavailable anywhere else in the world, will be utilized to generate key insights on how (structural and electronic / magnetic) correlations at the atomic level of matter are built and influence the superconducting electrons to pair-up.

- The post-doctoral researcher should be able and willing to travel to conduct experiments at DOE facilities in the USA.

Required qualifications

- PhD degree in Physical Sciences
- Demonstrated ability in quantitative structural analysis methods (e.g. Rietveld, pair distribution function)
- Proved experience in analytical experimental techniques, including, magnetometry and X-ray diffraction
- Excellent knowledge of the English language

Greek male candidates must have fulfilled their military obligations

Desired requirements

- Publications in peer-reviewed journals and scientific presentations in conferences is desired
- MSc degree in experimental techniques for condensed matter materials science (e.g. development of low-temperature physics probes) will be an advantage
- Programming skills for data acquisition and reduction will be beneficial
- Successful candidates must be able to work in an interdisciplinary environment

Location: IESL-FORTH, Heraklion, Crete, GREECE

(*) The Institute of Electronic Structure and Laser (IESL) at FORTH, is a major research Institute in Greece and internationally. IESL is traditionally strong in two main research directions, namely, Lasers & Photonics and Materials & Devices. These interdisciplinary areas possess research infrastructures of international standards, with science and technology goals that cross the borders between physics, chemistry and biology (http://www.iesl.forth.gr/). Training and education through research and the exploitation of technologically mature applications are equally important priorities. FORTH is an Equal Opportunity Employer and has a strong commitment to diversity.

The Functional Nanocrystals and Quantum Magnetism Laboratory (FUN-L; http://fun.iesl.forth.gr) at IESL-FORTH will be the host for the post-doctoral researcher. FUN-L engages in the exploitation of novel quantum phenomena aimed at understanding the relationship between the microscopic structure and macroscopic physical properties for designing technologically important materials (e.g. bad metals, doped-semiconductors, magnets, superconductors).

Expected Start Date: June 1, 2019 or until the position is filled
Contract Duration: 12 Months, with the possibility of extension according to the needs of the project
Project Duration: 3 years
Salary: will depend on the experience of the researcher
Insurance: social security according to the National law

Application Submission

Applications received before May 5th 2019 will receive immediate attention; however, applications will be reviewed thereafter until the position is filled.

Interested candidates who meet the aforementioned requirements are kindly asked to submit their applications to the address (hr@iesl.forth.gr), with cc to the Scientific Coordinator Dr Alexandros Lappas (lappas@iesl.forth.gr).

In order to be considered, the application must include:

- Application Form (please download file from the job announcement webpage http://www.iesl.forth.gr/research/showfile.aspx?Id=201901071165)
- A cover letter describing your research interests
- CV and publications list
- Two (2) reference letters, e-mailed directly to lappas@iesl.forth.gr and cc to hr@iesl.forth.gr
- Scanned copies of the ready available academic titles

Applications will be reviewed till the position is filled

Contact

For information and questions regarding the application and selection procedure, candidates are asked to contact the secretariat (hr@iesl.forth.gr), tel. +30 2810-391301.

For information and questions about the advertised position and the research activity of the group or the Institute itself, please contact Dr Alexandros Lappas (lappas@iesl.forth.gr), tel. +30 2810-391344.

Selection Announcement

The result of the selection will be announced on the website of IESL-FORTH.

Candidates have the right to appeal the selection decision, by addressing their written objection to the IESL secretariat within five (5) days since the results announcement on the web. They also have the right to access (a) the files of the candidates, as well as (b) the assessment results. All the above information related to the selection procedure will be available at the secretariat of IESL-FORTH in line with the Hellenic Data Protection Authority.

GDPR

FORTH is compliant with all legal procedures for the processing of personal data as defined by the **Regulation EU/2016/679 on the protection of natural persons with regard to the processing of personal data.**

FORTH processes the personal data and relevant supporting documents that you have submitted to us. Processing of that data is carried out exclusively for the needs and purposes of this specific call. Such data shall not be transmitted to or communicated to any third party unless required by law.

FORTH retains the above data up to the announcement of the final results of the call, unless further process and reservation is required by law or for purposes of exercise, enforcement, prosecution of certain one's legitimate legal rights' as defined in the Regulation EU/2016/679 and/or in national law.

We inform you that under the **Regulation EU/2016/679** you have the rights to be informed about your personal data, access to, rectification and erasure, restrictions of process and objection to as provided by applicable regulation and national laws.

We acknowledge also to you, that you have the right to file a complaint to the national Data Protection Authority. For any further information regarding exercise of your personal data protection rights, you may contact the Data Protection Officer at FORTH at dpo@admin.forth.gr.

You have the right to withdraw your application and consent for the processing of your personal data at any time. We inform you that, in this case, FORTH shall destroy such documents and/or supporting documents submitted and shall delete the related personal data.

ΜΕΤΑΔΙΔΑΚΤΟΡΙΚΟΣ ΣΥΝΕΡΓΑΤΗΣ - ΦΥΣΙΚΕΣ ΕΠΙΣΤΗΜΕΣ

Μία (1) θέση μεταδιδακτορικού συνεργάτη που θα απασχοληθεί στο ΙΗΔΛ-ΙΤΕ με σύμβαση εργασίας ορισμένου χρόνου στο πλαίσιο του προγράμματος με τίτλο «Deciphering the workings of molecule intercalated iron chalcogenides» (ONRG Award N62909 -17-1-2126).
Λεπτομέρειες στην ιστοσελίδα: https://www.iesl.forth.gr/en/about/job-positions/20191165

ΘΕΜΑ
Αλληλεπιδράσεις μαγνητισμού και υπεραγωγιμότητας σε δισδιάστατα χαλκογονίδια του σιδήρου.

ΠΕΡΙΓΡΑΦΗ ΘΕΣΗΣ
Η εξοικονόμηση ενέργειας και βελτίωση της ενεργειακής αποδοτικότητας, όπως για παράδειγμα στα δίκτυα μεταφοράς ρεύματος, βασίζεται στην ανάπτυξη νέων τεχνολογιών (π.χ. ηλιακές κυψελίδες, υπεραγώγιμα καλώδια, κινητήρες υψηλής απόδοσης κ.α.). Αυτές απαιτούν την κατανόηση εξωτικών καταστάσεων της ύλης, στις οποίες γίνονται εμφανείς οι κβαντικές ιδιότητες των ατόμων. Τέτοια ασυνήθιστη συμπεριφορά εκδηλώνεται στους υπεραγωγούς, υλικά τα οποία αφήνουν το ηλεκτρικό ρεύμα να περνά με πρακτικά μηδενική αντίσταση.
Το ερευνητικό πεδίο του έργου αφορά στην κατανόηση της φυσικοχημικής συμπεριφοράς δισδιάστατων κρυσταλλικών υλικών, χαλκογονιδίων μεταβατικών μετάλλων, για εφαρμογές χαμηλής ή μηδενικής κατανάλωσης ενέργειας. Ο/Η υποψήφιος/α αναμένεται να εστιάσει σε καινοτόμες φυσικές υβριδικές ενώσεις που εκμεταλλεύονται τις «διεπαφές» μεταξύ μαγνητικών/ μεταλλικών / μοριακών νανομετρικών στρωμάτων. Θα εφαρμόσετε καινοτόμες πειραματικές μεθόδους (π.χ. σκέδαση ακτίνων-Χ και νετρονίων, μαγνητομετρία SQUID κλπ) ώστε να διευρύνετε την επιστημονική σας γνώση μέσω της μελέτης της δομής και δυναμικής των υλικών αυτών. Τα αποτελέσματα θα χρησιμοποιηθούν στην κατανόηση θεμελιωδών αρχών που απορρέουν από τη σύζευξη σπιν-φορτίου-πλέγματος, ρυθμίζουν το μυστήριο της υπεραγωγιμότητας, και μπορούν να οδηγήσουν σε αξιοποιήσιμες τεχνολογίες.
Για περισσότερες πληροφορίες μπορείτε να απευθύνεστε στον Δρ. Αλέξανδρο Λάππα, «Εργαστήριο Λειτουργικών Νανοκρυστάλλων & Κβαντικού Μαγνητισμού», ΙΗΔΛ-ΙΤΕ.
E-mail: lappas@iesl.forth.gr, Lab: http://funl.iesl.forth.gr, ΤΗΛ: 2810-391344 ή 391300.

ΑΠΑΡΑΙΤΗΤΑ ΠΡΟΣΟΝΤΑ
• Διδακτορικό στις φυσικές επιστήμες (π.χ. Φυσική, Χημεία, Επιστήμη Υλικών) ή συναφών ειδικοτήτων Πολυτεχνικής Σχολής.
• Αποδεδειγμένη εμπειρία στη δομική ανάλυση κρυσταλλικών υλικών και σχετικών εργαλείων ποσοτικής επεξεργασίας δεδομένων (π.χ. μεθοδολογία Rietveld)
• Εμπειρία σε μετρήσεις φυσικών ιδιοτήτων ή/και την ανάπτυξη πειραματικών εργαστηριακών διατάξεων (π.χ. διασύνδεση επιστημονικών οργάνων με Η/Υ σε πειραματικούς σταθμούς).
• Άριστη γνώση της Αγγλικής γλώσσας.

ΑΙΤΗΣΗ
Οι ενδιαφερόμενοι καλούνται να υποβάλουν τις αιτήσεις τους ηλεκτρονικά, το αργότερο μέχρι την **5η Μαϊου 2019**, στη διεύθυνση hr@iesl.forth.gr, και στον Επιστημονικό Υπεύθυνο (Ε.Υ.), Δρ. Αλ. Λάππα με τα εξής δικαιολογητικά: (α) επιστολή που περιγράφει τα επιστημονικά σας ενδιαφέροντα, (β) βιογραφικό σημείωμα, επιστημονικές δημοσιεύσεις και παρουσιάσεις σε συνέδρια, (γ) ευκρινή αντίγραφα τίτλων σπουδών, (δ) δύο συστατικές επιστολές, οι οποίες θα σταλούν απευθείας από συνεργάτες σας στον Ε.Υ..

ΕΝΑΡΞΗ: 1 Ιουνίου 2019

ΔΙΑΡΚΕΙΑ: 12 μήνες. Η σύμβαση δύνανται να ανανεωθεί.