



SCUOLA INTERNAZIONALE SUPERIORE DI STUDI AVANZATI

## TRANSLATION OF ANNOUNCEMENT FOR 1 RESEARCH POSITION

Decree n. 176 dated 13.03.2018

- Art.1 A public selection, based on qualifications, is hereby announced for 1 research position in the research field detailed in Annex 1. Full details, admission requirements and duration are listed in Annex 1.
- Art.2 Eligible candidates must be in possession of a scientific-professional curriculum which enables them to carry out research activity and meet the further requirements specified in Annex 1.  
Personnel with permanent positions in Italian universities, public research and experimentation institutions, ENEA, ASI or institutions which award scientific degrees equivalent to PhD, in accordance with art. 74, par. 4 of DPR 382 dated 11.07.80, are excluded from applying.  
In accordance with art. 18 of law 240/10 candidates having a family relationship or other degree of kinship up to the 4<sup>th</sup> degree with the following persons are also excluded from applying:
- SISSA Professors belonging to the Area that requested the position;
  - Director of SISSA;
  - Secretary General of SISSA;
  - Member of the Board of Directors of SISSA (please see Annex A).
- The research fellowship is awarded through a private law contract which does not give any right to be employed by universities.
- Art.3 The salary of the research fellowship detailed in Annex 1 is gross per year and includes contributions to be paid by the researcher. The fellowship is paid monthly in arrears. The fiscal and social security treatment of the research fellowship is in accordance with art. 4 of Italian law n. 476 dated 13.08.84 and subsequent integrations and modifications, and par. 26 and followings of art. 2, Italian law n. 335 dated 08.08.95 and subsequent integrations and modifications.  
The School arranges for insurance coverage for the fellowship holders against accidents in the workplace and for third party liability while carrying out their research work. The insurance premium is deducted from the fellowship.
- Art.4 The fellowship cannot be held contemporarily with other fellowships of whatever kind, except those awarded by Italian or foreign institutions with the aim of integrating the research activity of the candidate through a period spent abroad.  
Provided that they fulfil their research obligations, the fellowship holders are authorized to carry out professional activity as long as the activity is compatible with the research position, does not represent a conflict of interest and is not prejudicial to the School. Fellowship holders willing to carry out external activity in a continuous way shall present a specific request, which will be evaluated by the relevant Area Council and successively submitted to the Academic Senate of the School for approval.  
If compatible with their research duties, and following written approval by the scientist responsible for the research project, fellowship holders can participate in research assignments commissioned to SISSA by third parties (in accordance with art. 66 of the Italian D.P.R. 382/80) and benefit from the financial proceeds deriving from such activities, in accordance with the current regulations.  
Fellowship holders cannot be enrolled in University Degree courses, PhD courses with scholarship or medical school of specialization in Italy or abroad.  
Government employees must be given unpaid leave for the period of the fellowship.
- Art.5 The requirements for the admission to the selection procedure are listed in Annex 1.



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The qualifications evaluation criteria, which can be specified by the examining board according to internationally recognised parameters, are, with regard to the thematic of the research fellowship, the relevance, the importance and the quality of:

- the proven research activity;
- the academic qualifications (University Degree, PhD, specialization degrees or other certificates of attendance regarding post-degree specialization courses held in Italy or abroad);
- other qualifications.

The scientific qualifications must be relevant to the Area referred to in this announcement or to interdisciplinary subjects relevant to the areas involved.

Art.6 The examining board is nominated with Directorial Decree by the Director of SISSA, according to the proposal of the relevant Area Council. It is composed of a minimum of three members and a maximum of five members of which one shall act as President and one shall act as Secretary. The members of the examining board shall be chosen among the professors and researchers of SISSA, of Universities, of Research institutions or among experts in the subjects referred to in this announcement. A substitute can be nominated for each member.

The evaluation of the qualifications, subject to the preceding choice of the criteria, shall be carried out by the examining board according to the descriptions detailed in Annex 1.

At the end of the evaluations the examining board will draw up a report, including the evaluation criteria, the total mark obtained by each candidate and a classification list of those considered eligible. The selection procedure and the classification list are approved with Directorial Decree.

The eligible candidate will undertake a research contract with SISSA in accordance with Italian Law n. 240/10, art. 22.

Being in the classification will not give any rights in other selection procedures.

Art.7 Applications drawn according to the form attached have to be addressed to the Director of SISSA and must reach the School, via Bonomea, 265, 34136 - Trieste, no later than **April 13th, 2018 - 1:00 p.m.**

The application must be sent:

1. by standard mail or registered letter or
2. by fax (+39 040 3787240) if accompanied by a copy of a legible and valid identity document or
3. by hand delivery to the Human Resources Office (SISSA, Via Bonomea 265 – Trieste, rooms 203-204, second floor, from 8:30 a.m. to 2:30 p.m., except on the date of expiration when the applications must be delivered by 1.00 p.m.) or
4. by e-mail to the following address: [ufficiorisorseumane@sissa.it](mailto:ufficiorisorseumane@sissa.it) or
5. by PEC (certified electronic mail) to the certified e-mail of SISSA [protocollo@pec.sissa.it](mailto:protocollo@pec.sissa.it) within the aforesaid date. In this case the application shall be sent by another PEC. Applications sent to [protocollo@pec.sissa.it](mailto:protocollo@pec.sissa.it) by standard e-mail shall not be accepted.

If the application is sent as per point 4 and 5 above, candidates shall attach to the e-mail message the application and the cv with their scanned signatures, in .pdf, together with the scanned copy of a valid ID (front and back), in .pdf, and all the relevant attachments in .pdf.

Applications which are incomplete, illegible or which reach the School after the deadline mentioned above shall not be considered eligible.

In their applications candidates shall state:

- a) their full details, date and place of birth, residence, the address where they wish to receive communications regarding their application, their telephone number and e-mail. The School should be promptly informed of any change in these details;
- b) the position for which the candidate is applying (candidates applying to more than one position shall submit one application for each position they wish to apply to);
- c) the University Degree obtained, indicating the date on which it was awarded, the mark obtained and the University which awarded it, the title of the degree thesis and the name of the supervisor;



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d) the title of the PhD Degree obtained, indicating the date on which it was awarded, the University which awarded it, the title of the PhD Degree thesis and the name of the supervisor;

e) any other academic qualifications which prove their scientific curriculum;

f) the complete list of the titles and publications they wish to submit to the examining board and that must be enclosed to the application. This list must be prepared in accordance with international formats and must specify all the authors. Candidate may submit the .pdf files relevant to the aforesaid publications to the following e-mail address:

[ufficiorisorseumane@sissa.it](mailto:ufficiorisorseumane@sissa.it).

We remind that the application can be sent only as specified by point 1, 2, 3, 4 and 5 of this article.

The SISSA Administration does not assume any responsibility for any missing, late or incomplete transmission of documentation relevant to the selection procedure due to postal, telegraphic or computer problems for which SISSA is not at fault.

SISSA Administration does not assume any responsibility for the loss of correspondence due to an incorrect address indicated by the candidate or due to a late, or lack of communication of address change in the application, mistakes by third parties in delivering correspondence by post or telegrams, loss of the receipt of the registered letter containing the application or communications relevant to the selection procedure.

Candidates must meet the expenses for collecting the documents and publications they have submitted within 3 months from the selection procedure. After this period SISSA cannot be held responsible in any way for these documents and publications.

Art.8 After a budget verification has been carried out, the eligible candidate will receive notification of the award of the research fellowship by registered letter.

Within 30 days from the start of the research activity at SISSA, Italian and EU candidates or non-EU citizens resident in Italy will have to send to the Director of SISSA the following documents:

1) affidavit attesting the birth, citizenship and residence or submit a valid ID; non- EU citizens must produce their passport;

2) affidavit attesting the possession of a University Degree and a PhD;

3) copy of the tax code issued in Italy;

Non-EU citizens authorized to sojourn in Italy owing to the conventions between Italy and their own country have to submit the same above mentioned documents.

Non-EU citizens regularly sojourning in Italy may submit an affidavit according to articles 46 and 47 of the D.P.R. 445/2000 exclusively for personal qualities and events which can be certified and attested by public Italian authorities.

In any different case the details listed in points 1), 2) and 3) of this article must be documented with an affidavit submitted together with the relevant copies within 30 days from the beginning of the research activity at SISSA. Moreover within 60 days from the beginning of their research activity winners have to submit a declaration concerning the information requested in points 1), 2) and 3) issued by the foreign competent authorities with a translation in Italian authenticated by the Italian Consulate abroad.

The School reserves the right to verify all affidavits submitted.

Should a letter of acceptance not be received, the documents listed above not be submitted in time or the project be terminated before the due date, the research fellowship may be offered to the next candidate eligible in the classification list, through authorization by the Director, at the express request of the Area Coordinator or the scientist responsible for the research project.

The starting date of the fellowship shall be agreed with the Area Coordinator or with the scientist responsible for the research project.

Art.9 The fellowship holders undertake to carry out the research activity as foreseen in the contract and in accordance with the research program of the Area.



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The research activity is carried out in the frame of the research project for which the applicant has been selected. Every year the fellowship holders must present a report on the activity carried out in the previous year to the Area Council. In major case of non-compliance the contract can be terminated, by decision of the School Senate and on proposal of the Area Council, heard the counterpart.

The contract is automatically resolved in the following cases:

- lack or unjustified delay in the starting of the research activity;
- unjustified suspension of the activity for more than 15 days;
- breach of the incompatibilities established by the current Rules for the awarding of research fellowship in SISSA;
- negative evaluation of the research activity expressed by the Area Council.

An authorized absence of up to 30 days a year does not require the fellowship to be suspended or the absence to be recuperated at a later date.

At least 30 days' notice must be given by the fellowship holders in case of resignation, in which case no penalty shall be applied by SISSA. Failure to do so shall result in a penalty involving the recovery or the failure to pay the salary for the period of notice not given. The 30 days' notice shall not be applied during the first 30 days of research activity.

SISSA shall reserve the right to terminate the contract if the external funding becomes unavailable. In this case SISSA shall give the fellowship holder at least 60 days' notice. Failure to do so shall result in the payment to the research fellowship holder of an amount equal to the period of notice not given.

Art.10 The total duration of the research fellowship including the renewals must not exceed 6 years with the same researcher. To this end, the time in which the candidate was holder of a research fellowship and enrolled in PhD courses (without scholarship) is not taken into account for a period not exceeding the legal duration of the PhD program.

In accordance with law 240/10 candidates can not be awarded research fellowship or temporary researcher contracts with public, private or telematic universities, nor with other institutions as specified by art. 1 of law 240/10 for a period exceeding 12 years, even if not continuously. To this end the periods of absence due to maternity leave or state of illness are not taken into account.

The renewal of the research fellowship is decided by the School Academic Senate and, as for the financial coverage, by the Board of Directors, on the basis of the evaluation of the research activity carried out by the fellowship holder, the state of the art of the research programme, on request of the scientist responsible in the Area relevant to the research fellowship.

Art.11 SISSA, in accordance with Italian D.Lgs. 30.06.2003 n.196, undertakes to respect the privacy of all personal data provided by the candidates: all data submitted by the candidate will be used only for the selection procedure and for the drawing up of the relevant contract according to the current legislation.

Trieste, 13.03.2018



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## ANNEX 1

### Mathematics Area

Public selection based on qualifications

Research title: **Numerical modeling and simulation of nanometric electronic devices**

Fields of the research activity: - Numerical modeling and simulation of nanometric electronic devices. - Modeling the electrical properties of materials, including structural defects and interfaces, providing a link between ab-initio simulation software and the traditional Technology-CAD software used in the semiconductor industry. - 3D Finite Element simulations of the potential and temperature fields in the device and of the charge continuity and drift-diffusion equations. The candidate will work closely with the MDLSOFT company (<http://www.mdlsoft.com/>).

Scientist responsible for the research activity: prof. Luca Heltai

Members of the research group: Antonio de Simone Gianluigi Rozza Giovanni Noselli Alessandro Lucantonio Alberto Sartori

Area: 01 – MATHEMATICS AND INFORMATICS

Public selection sector: 01/A5 Numerical Analysis

Duration of the research fellowship: 12 months, renewable

**Candidates are required to have at least two confidential letters of reference sent to the address [luca.heltai@sissa.it](mailto:luca.heltai@sissa.it), before the deadline.**

Gross remuneration per year: € 24.336,00

Requisites for the admission to the selection procedure:

University degree: Master's degree in Mathematical Engineering, Physics Engineering, Electronic Engineering, Industrial Engineering (Aerospace, Mechanics, Nuclear, Energetics, or equivalent), Civil Engineering, Mathematics, Physics.

Proven experience in:

Mathematical modeling, numerical analysis, and simulation for complex systems governed by PDEs - advanced C++ programming skills - knowledge / use of development platforms in Windows and Linux for scientific computing.

Additional requirements, competencies and abilities:

**Preferential Title: PhD in Mathematical Engineering, Electronic Engineering, Mathematics, Applied Mathematics, Industrial Engineering, Numerical Analysis, Computational Science and Engineering.**

Excellent knowledge of high-level programming languages, such as C / C ++ / Python; Use of advanced software libraries for the Scientific Calculation. Finite element discretization techniques.

Evaluation criteria:

PhD: maximum 10 points

University degree: maximum 8 points

Published works and other research products: maximum 16 points

Further post-lauream diplomas: 8 points

Other titles: maximum 18 points

Gross total cost of the research fellowship will be funded by the Project:



**SCUOLA INTERNAZIONALE SUPERIORE DI STUDI AVANZATI**

- COMM\_RIC\_MDLab\_MATE\_Heltai\_0462 - Progetto conto terzi con MDLab per la realizzazione dell'attività di "Applicazione di metodi agli elementi finiti in un simulatore di dispositivi nanoelettronici" - Prof. Heltai

Position approved by:

Directorial Decree no. 152 dated 09.03.2018