



## TRANSLATION OF THE DIRECTOR'S DECREE NR. 190 DATED 16.03.2022

### Selection for the conferment of three PhD fellowships on “Physics and algorithms for Quantum Technology” financed by Technology Innovation Institute – Sole Proprietorship L.L.C - Academic year 2022/23

In the framework of the agreement signed with **Technology Innovation Institute – Sole Proprietorship L.L.C**, the International School for Advanced Studies (SISSA) announces a selection based on academic qualifications and an interview for the conferment of three PhD fellowships on **Physics and algorithms for Quantum Technology** starting from the academic year 2022/23:

<b>PhD course in Theory and Numerical Simulation of Condensed Matter</b>	<b>2 fellowships</b>
<b>PhD course in Statistical Physics</b>	<b>1 fellowship</b>

**Candidates can participate to the selection for one or both courses.**

**Amount of the fellowship:** €18.845,64 gross per year

**Financing Body:** **Technology Innovation Institute – Sole Proprietorship L.L.C**

**Duration of the programme:** 4 years

#### • **Other benefits:**

A contribution towards living expenses of the amount of €100,00 gross per month will be awarded to those who will subscribe a registered rent contract in the Trieste province.

A “laptop contribution” up to € 400,00 may be granted upon request and presentation of the relevant invoice.

A contribution towards the expenses to be enrolled in the health insurance system up to € 198,77 will be granted to non-EU students only.

Students enrolled in the third/fourth year can request a contribution of up to € 1.000,00 for their access to training and/or to create a network of academic contacts to help them in their future career.

A contribution (70% of the amount of the fellowship) may be awarded to students who should be forced to suspend their activity due to illness, maternity or other serious reasons up to 5 months.

#### • **Requirements:**

SISSA welcomes applications from young candidates who have completed, or are going to complete, their undergraduate studies, with a strong interest in research.

To apply, candidates, without limitations of age and nationality, must be in possession of one of the following degrees **by 31st October, 2022:**

- Italian **laurea** or **laurea specialistica/magistrale** in Physics or Physical Engineering.
- A University degree obtained abroad and considered equivalent to the aforementioned Italian degrees by the evaluation Committee.



### • **Online application:**

An online application must be filled and sent using the procedure available at the page <https://pica.cineca.it/sissa/> by **13.00 hrs of 26<sup>th</sup> May 2022 (Italian time)**.

Candidates should upload the following documents in pdf format:

- *curriculum vitae*;
- a certificate of University examinations taken (with marks);
- a final degree certificate;
- If, at the time of application, candidates should not be yet in possession of a degree certificate, they can submit it at the time of the examination.

*European Union candidates can submit a personal declaration instead of the aforementioned certificates.*

- a copy of the diploma thesis (if any), or its abstract.

At the end of the procedure, candidates will have to indicate the names and email addresses of two professors that will receive an email requesting to send a recommendation letter through the same online procedure **by 13.00 hrs. of 28 May 2022 (Italian time)**.

**The candidate will then have to print out the admission request form, sign it and send it through the same online procedure.**

Candidates with disabilities certified according to the law n. 104/1992 and subsequent modifications, and those diagnosed with Specific Learning Disorder certified according to the law n. 170/2010 and to the D.M. n. 5669 dated 12/07/2011, can report their needs together with the submission of the admission application, within the deadline set by this announcement.

### • **Selection Procedure:**

After the deadline of the announcement, the Selection Committee, which will be composed of three (3) TQT Faculty Members of SISSA, one (1) TQT Member of ICTP and one (1) TII Member, will evaluate the documentation produced by the candidates (*curriculum vitae*, letters of recommendation, etc.). Candidates who have obtained a minimum score of 21/30 will be invited to take the interview which will be held during the week **6 – 10 June 2022**, via zoom, with scheduled times that will be communicated later on.

For the interview, the candidate should be reachable at the address indicated in the application, at the time communicated by SISSA through email.

Candidates should show an ID document for identification at the beginning of the interview. The absence of a contact email in the application or of a valid ID during the interview, imply the exclusion from the competition.



• **Admission:**

The admitted candidates will be notified by email and will be asked to be present at SISSA on 1st October 2021, for the registration.

**Failure to do so without a valid reason will result in the loss of the fellowship awarded.**

**In order to be enrolled and to be awarded the fellowship, admitted candidates must pay a “Regional Tax” of the amount of € 120,00 - € 160,00 per year. Information can be retrieved at <http://www.ardiss.fvg.it/>.**

For information about rights and duties of the doctoral students please consult the Teaching Regulations of the PhD courses of SISSA issued with D.D. 699 of 29.11.2017 [at this page](#).

As per Legislative Decree 30.06.2003 n.196, and of the European Regulation 2016/679 (General Data Protection Regulation), we inform that all data given to this Administration will be processed only for purposes related to and instrumental to the existing contract, in compliance with the provisions in force.

The Director  
Prof. Andrea Romanino  
(digitally signed)



**Selection for the conferment of three PhD fellowships on Physics and algorithms for Quantum Technology financed by Technology Innovation Institute – Sole Proprietorship L.L.C**

**Project:** The project will be dealing with quantum correlations and entanglement in many-body theory, with specific applications to quantum gases spatially confined in low-dimensional structures, atomtronics, mesoscopic networks, and superconducting circuits. Quantum Information algorithms will be devised to solve practical problems more efficiently than with classical devices and to find ways to implement them on near-term quantum hardware or future. Applications to quantum sensing and quantum communications will be sought.

**Research Fields:** Atomtronics, Mesoscopic Physics, Many-body Physics, Quantum Information, Quantum Sensing, Photonics.

**Qualification required:** Italian **laurea** or **laurea specialistica/magistrale**, or equivalent degree obtained abroad, in Physics or Physical Engineering.

**Amount of the fellowship:** € 18.845.64 yearly gross financed by **Technology Innovation Institute – Sole Proprietorship L.L.C.**

**Duration of the programme:** 4 years (starting from 1 October 2021)

**Deadline for online submission of applications: 6th September 2021 (13.00 hrs – Italian Time)**

**Admission: Academic and scientific qualifications + oral exam**

The oral exam will take place during the week **13-17 September 2021** via zoom.

**Evaluation of academic and scientific qualifications:** 30 points

**Access to Oral Exam:** minimum mark of 21/30 in the academic and scientific qualifications

**Evaluation of Oral Exam:** 70 points

**Total Evaluation:** 100 points

**Eligibility:** 70 points

Admission to the oral exam and results of all evaluations will be notified by email.