



**SCUOLA INTERNAZIONALE SUPERIORE DI STUDI AVANZATI**

**TRANSLATION OF ANNOUNCEMENT FOR 12 RESEARCH POSITIONS  
(Decree no.215 dated 13.04.2012)**

Art. 1

A public selection, based on academic qualifications, is hereby announced for 12 research positions at the International School for Advanced Studies (SISSA) of Trieste as below mentioned, as specified in the Annex 1.

Art. 2

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 the Annex 1. Personnel with permanent positions in Italian Universities, Astronomical and Astrophysical Observatories and Public Research Institutions (in accordance with the Italian law DPCM of 30.12.93, art. 8), E.N.E.A. and A.S.I., or in Institutions which confers scientific degrees considered equivalent to PhD (in accordance with the Italian law DPR no. 382/80, art.74) are excluded from applying.

In accordance with the Italian law 240/10, art.18, are also excluded from applying candidates having a family relationship or other degree of kinship with the following persons (see Annex A):

- SISSA Professors belonging to the Sector/Area which is offering the positions;
- Director of SISSA;
- Secretary General of SISSA
- Member of the Council of Administration of SISSA.

The research fellowship is awarded through a private contract which does not give any rights regarding access for employment in the Universities.

Art. 3

The research fellowship value, as specified in the Annex 1, is gross per year and includes contributions to be paid by the contractor. The fellowship is paid monthly. The fiscal and social security treatment of the research fellowship is in accordance with Italian law no. 476/84, art.4 and Italian law no. 335/95, art.2, par. 26 and followings. The School provides accident and third-party insurance that covers the research fellow while carrying out research for the School. The insurance premium is deducted from the fellowship.

Art. 4

The fellowships cannot be held contemporaneously with other fellowships of whatever kind, except those awarded by Italian or foreign Institutes with the aim of integrating the training or research activity of the fellowship holders through a period abroad. The Senate of the School can authorize fellowship holders to carry out other professional activities if they are compatible with the research position, are not in conflict of interest with the same position and are not prejudicial to the School. Fellowship holders willing to carry out external activity in a continuous way If compatible with their research assignments, and following written approval by the scientist responsible for the research project, fellowship holders can participate in research assignments commissioned by SISSA for third parties (in accordance with the art. 66 of the Italian D.P.R. 382/80) and in the division of the earnings coming from this activity, in accordance with the regulations. Fellowship holders can not be enrolled in University Degree courses, PhD



## SCUOLA INTERNAZIONALE SUPERIORE DI STUDI AVANZATI

courses with fellowship or medical school of specialization in Italy or in a foreign country. The research fellowship holder, who is a State employee, must be given unpaid leave for the period of the fellowship.

### Art. 5

The academic requirements for admission to the competitive selections above mentioned on art.1 are specified in the Annex 1. Before the beginning of the evaluations the examining board will define the evaluation criteria for academic qualifications and publications and for the interview, if foreseen. The academic qualifications evaluation criteria, which can be specified by the examining board coherently with international parameters, will value the relevance, the importance and the quality of:

- The proven research activity;
- The academic titles (University Degree, PhD, specialization degrees or other certificates of attendance regarding post-degree specialization courses in Italy or in foreign countries frequency);
- Other qualifications

The academic qualifications must be relevant to the position offered or to similar research field and must be in possession of the applicants at the expiring date of the public announcement.

### Art. 6

The examining boards are nominated by the Director of SISSA, according to the proposal of the Sector Councils concerned. They are composed of a maximum of five members, representative for the scientific sector of interest.

At the end of the evaluations the examining board will draw up a report of the examination, including the evaluation criteria, the total mark obtained by each candidate and a classification of those considered eligible.

The oral examination, if any, is normally carried out at SISSA.

Candidates living out of Italy or 500 km far from SISSA can sit a telematic oral examination using workstations located in University or Italian diplomatic office. The identity of the applicants must in this case be certified by the personnel of the workstation or through telematic location. The applicant's identity will be afterwards verified when the contract will be signed. Candidates willing to apply to the telematic procedure must specify it in the application form.

The procedure results and the final classification will be approved with Director Decree. The eligible candidate will undertake a research contract with SISSA in accordance with Italian Law no. 240/10, art. 22.

The classification will not give any rights to further procedures.

### Art. 7

Applications, including both a CV in which the specific scientific and professional qualifications required are indicated and the documentation concerning the candidate's scientific experience, have to be addressed to the Director of SISSA and **must reach the School**, via Bonomea, 265, 34136- Trieste, **no later than May 14, 2012, at 1:00 p.m.**

The application form with the original signature must be sent:

1. by postal mail or
2. by fax (no. 0403787240) if accompanied by a copy of a legible and valid identity document or
3. by delivery to Human Resources Office (Sissa, Via Bonomea 265 – Trieste, rooms 203-204, second floor, from 8:30 a.m. to 2:30 p.m., except the date of expiration: 1.00 p.m.)



## SCUOLA INTERNAZIONALE SUPERIORE DI STUDI AVANZATI

Applications sent by electronic mail will not be accepted.

In their applications candidates will have to indicate:

- a) their full particulars, date and place of birth, home address, the address where they wish to receive communications regarding their application and a telephone number. Changes in this information should be rapidly communicated to the Direction of the School;
- b) the Sector of the School and the position for which the candidate is applying;
- c) the University Degree obtained, indicating the date it was awarded, the mark obtained and the University which awarded it, the title of the degree thesis and the name of the supervisor;
- d) the title of the eventual PhD Degree obtained, indicating the date 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, in particular for candidates who do not have a PhD Degree, their scientific curriculum;
- f) the complete list of the titles and publications to be submitted to the examining board. This list must be prepared in accordance with international formats and must specify all the authors. Copy of the titles (e.g. University Degree) and publications have to be included with the application or in alternative, sent in .pdf to the following e-mail address: [assegni.ricerca@sissa.it](mailto:assegni.ricerca@sissa.it). We remind that the application can be sent only as specified by point 1,2 and 3 of this article. The SISSA Administration does not assume any responsibility for any missing, late or incomplete transmission of documentation connected to the selection process due to postal, telegraphic or computer problems for which SISSA is not at fault.

The 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 telegramme, fortuitous events or reasons of force majeure.

Within three months of the examination, candidates must meet the expenses of the documents retrieved and of the publications submitted. After this period SISSA cannot be held responsible in any way for these documents and publications.

### Art. 8

After budget verification is carried out, winners will receive notification of the award of the research fellowship. Within 30 days from the beginning of the research activity at S.I.S.S.A., Italian and European Community candidates or non-European Community citizens resident in Italy will have to send to the Direction of SISSA the following documents:

- A) personal declaration of birth, citizenship and residence or presentation of an identity document not yet expired; non-European Community citizens have to show their passport;
- B) personal declaration and copy of documents attesting: 1) the possession of a PhD Degree or 2) the completion of a three-year PhD course or 3) the possession of a University Degree including the mark obtained and the date in which the degree was awarded or 4) the possession of an equivalent academic qualification;
- C) copy of the fiscal code issued in Italy;

Non-European Community citizens authorized to sojourn in Italy owing to the conventions between Italy and their own country have to send the same over-mentioned documents.



## SCUOLA INTERNAZIONALE SUPERIORE DI STUDI AVANZATI

Non-European Community citizens regularly sojourning in Italy can use a substitute declaration exclusively for personal qualities and events certified and attested by public Italian subjects.

In any different case the above stated information have to be documented by a personal declaration and by relative photocopies 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 produce a declaration concerning the information requested in points A, B and C 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 personal declarations.

Should a letter of acceptance not be received, or the above documents not be presented in time or a candidate refuse the position, the research fellowship will be offered to the next candidate eligible in the classification list, through authorization by the Director, at the express request of the responsible scientist or the Sector/Area's coordinator. The starting date of the fellowship shall be agreed with the scientist responsible in the Sector/Area for the research fellowship.

### Art. 9

The fellowship holders undertake to carry out research activity as foreseen in the contract and in accordance with the research program of the Sector/Area. 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 of the activity carried out in the previous year to the Council of the Sector. In major case of non-compliance the contract can be terminated, by decision of the School Senate and on proposal of the Council of the Sector, 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
- serious violation of the incompatibilities established for the award of the research fellowship
- negative evaluation of the research activity expressed by the Council of the Sector

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 of advanced notice must be given in case of resignation, in which case no penalty will be applied.

### Art. 10

The total duration of the research fellowship and the eventual renewals must not exceed 4 years with the same subject. To this end, the period in which the subject has been enrolled in PhD courses (without grant) is not taken into account. In accordance with Italian Law no. 240/10 one subject can not be awarded research fellowship or temporary researcher contracts with SISSA or other universities, public, private or telematic nor with other subject as specified by art. 1 of the Italian law no. 240/10 for a period exceeding 12 years. To this end the periods of absence due to maternity leave or state of illness are not taken into account.

The research fellowship renewal is decided by the School Senate and, as for the financial coverage, by the Council of Administration, on the basis of the evaluation of the research



## SCUOLA INTERNAZIONALE SUPERIORE DI STUDI AVANZATI

activity carried out by the fellowship holder, the state of the art of the research programme, following request of the scientist responsible in the Sector/Area for the research fellowship.

### Art. 11

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

Trieste, 13.04.2012



SCUOLA INTERNAZIONALE SUPERIORE DI STUDI AVANZATI

## Annex 1

### Position 1 – **Astrophysics** – Area: **Physics, support to the activity of the PhD course in Astrophysics**

Title of the research fellowship: "SPH simulations of galaxy clusters: X emission and velocity field analysis"

Area: 02 – Physical sciences

*Settore concorsuale:* 02/C1 *Astronomia, Astrofisica, Fisica della Terra e dei Pianeti*

Responsible scientist: prof. L. Danese

Members of the research group: prof. L. Danese, prof. A. Bressan, prof. P. Salucci, dr. R. Valdarnini

Requirements for the admission to the competitive selection:

- University degree in Physics/Astronomy or
- PhD in Physics/ Astronomy;
- proven experience in velocity structure analysis of galaxy clusters and in the modelling of their X emission maps.

Candidates with equipollent academic titles awarded by foreign institutions are admitted to the selection procedure. The PhD or an equipollent title will be taken into account in the selection procedure provided that it is awarded to the candidate by 30 September 2012.

Evaluation criteria: CV, congruity of the activities carried out by the candidate with regard to the scientific field described in the announcement, published works in international magazines relevant to the scientific field described in the announcement.

Duration of the research fellowship: 24 months, renewable for 12 months.

Annual gross employee: € 23.760,00

Financing by SISSA

Approved by the Council of Astrophysics Sector on 16.02.2012

SISSA Academic Senate on 28.02.12

SISSA Administration Council on 02.03.12



SCUOLA INTERNAZIONALE SUPERIORE DI STUDI AVANZATI

**Position 2 – Astrophysics – Area: Physics, support to the activity of the PhD course in Astrophysics**

Title of the research fellowship: "Black Hole Thermodynamics"

Area: 02 – Physical sciences

*Settore concorsuale: 02/C1 Astronomia, Astrofisica, Fisica della Terra e dei Pianeti*

Responsible scientist: prof. S. Liberati

Members of the research group: prof. S. Liberati, prof. C. Baccigalupi, dr. T. Sotiriou

Requirements for the admission to the competitive selection:

- University degree in Physics/Astronomy or
- PhD in Physics/Astronomy;
- proven experience in black hole thermodynamics aspects in alternative gravity theories.

Candidates with equipollent academic titles awarded by foreign institutions are admitted to the selection procedure. The PhD or an equipollent title will be taken into account in the selection procedure provided that it is awarded to the candidate by 30 September 2012.

Evaluation criteria: CV, congruity of the activities carried out by the candidate with regard to the scientific field described in the announcement, published works in international magazines relevant to the scientific field described in the announcement.

Duration of the research fellowship: 24 months, renewable for 12 months.

Annual gross employee: € 23.760,00

Financing by SISSA

Approved by the Council of Astrophysics Sector on 16.02.2012

SISSA Academic Senate on 28.02.12

SISSA Administration Council on 02.03.12



**SCUOLA INTERNAZIONALE SUPERIORE DI STUDI AVANZATI**

**Position 3 – Astrophysics – Area: Physics, support to the activity of the PhD course in Astrophysics**

Title of the research fellowship: “Curved spacetime and black hole perturbation theory”

Area: 02 – Physical sciences

*Settore concorsuale: 02/C1 Astronomia, Astrofisica, Fisica della Terra e dei Pianeti*

Responsible scientist: prof. S. Liberati

Members of the research group: prof. S. Liberati, dr. T. Sotiriou

Requirements for the admission to the competitive selection:

- University degree in Physics/Astronomy or
- PhD in Physics/Astronomy;
- proven experience in perturbation theory on Kerr space-time.

Candidates with equipollent academic titles awarded by foreign institutions are admitted to the selection procedure. The PhD or an equipollent title will be taken into account in the selection procedure provided that it is awarded to the candidate by 30 September 2012.

Evaluation criteria: CV, congruity of the activities carried out by the candidate with regard to the scientific field described in the announcement, published works in international magazines relevant to the scientific field described in the announcement.

Duration of the research fellowship: 24 months, renewable for 12 months.

Annual gross employee: € 23.760,00

Financing by SISSA

Approved by the Council of Astrophysics Sector on 16.02.2012

SISSA Academic Senate on 28.02.12

SISSA Administration Council on 02.03.12





**SCUOLA INTERNAZIONALE SUPERIORE DI STUDI AVANZATI**

**Position 4 – Astrophysics – Area: Physics, support to the activity of the PhD course in Astrophysics**

Title of the research fellowship: “multi-messenger study of cosmic rays sources and propagation in the galaxy”

Area: 02 – Physical sciences

*Settore concorsuale: 02/A2 Fisica teorica delle interazioni fondamentali  
02/C1 Astronomia, Astrofisica, Fisica della Terra e dei Pianeti*

Responsible scientist: prof. Piero Ullio

Members of the research group: prof. Piero Ullio, dr. Samuel Leach, dr. Andrea De Simone

Requirements for the admission to the competitive selection:

- University degree in Physics or equipollent;
- experience in the field described in the announcement;
- proven experience in cosmic rays propagation models, C++ programming and solution of numerical problems.

Evaluation criteria: quality and quantity of published works in international magazines, presentations at congresses, letters of reference.

Duration of the research fellowship: 24 months, renewable for 12 months.

Annual gross employee: € 23.760,00

Financing by SISSA

Approved by the Council of Astrophysics Sector on 16.02.2012

SISSA Academic Senate on 28.02.12

SISSA Administration Council on 02.03.12



SCUOLA INTERNAZIONALE SUPERIORE DI STUDI AVANZATI

**Position 5 – Astrophysics – Area: Physics, support to the activity of the PhD course in Astrophysics**

Title of the research fellowship: “Galileone multiple scalar fields”

Area: 02 – Physical sciences

*Settore concorsuale: 02/C1 Astronomia, Astrofisica, Fisica della Terra e dei Pianeti e 02/A2 - Fisica teorica delle interazioni fondamentali*

Responsible scientist: prof. Stefano Liberati

Members of the research group: prof. Stefano Liberati, prof. Carlo Baccigalupi, prof. Paolo Creminelli, prof. Piero Ullio, dr. Thomas Sotiriou

Requirements for the admission to the competitive selection:

- University degree in Physics;
- experience in the field described in the announcement;
- proven experience in gravity theories with scalar fields.

Evaluation criteria: quality and quantity of published works in international magazines, presentations at congresses, letters of reference.

Duration of the research fellowship: 24 months, renewable for 12 months.

Annual gross employee: € 23.760,00

Financing by SISSA

Approved by the Council of Astrophysics Sector on 16.02.2012

SISSA Academic Senate on 28.02.12

SISSA Administration Council on 02.03.12



**SCUOLA INTERNAZIONALE SUPERIORE DI STUDI AVANZATI**

**Position 6 – Elementary Particle Theory – Area: Physics**

Title of the research fellowship: "Geometrical aspects of the string and field theories"

Area: 02 – Physical sciences

*Settore concorsuale: 02/A2 Fisica teorica delle interazioni fondamentali*

Responsible scientist: dr. Giulio Bonelli

Members of the research group: dr. Bonelli, prof. M. Bertolini, prof. Bonora, prof. Cecotti, prof. Tanzini

Requirements for the admission to the competitive selection:

- PhD in Physics/Mathematics;
- experience in string theory.

Evaluation criteria: curriculum vitae, published works, professional experience.

Duration of the research fellowship: 24 months, renewable for 12 months.

Annual gross employee: € 23.760,00

Financing by SISSA

Approved by the Council of Elementary Particle Theory Sector on 25.01.2012

SISSA Academic Senate on 28.02.12

SISSA Administration Council on 02.03.12



SCUOLA INTERNAZIONALE SUPERIORE DI STUDI AVANZATI

**Position 7 – Elementary Particle Theory – Area: Physics**

Title of the research fellowship: “field theories in curved spaces as calculable descriptions of field theories in 4D strongly coupled”

Area: 02 – Physical sciences

*Settore concorsuale: 02/A2 Fisica teorica delle interazioni fondamentali*

Responsible scientist: prof. Marco Serone

Members of the research group: prof. M. Serone e dr. A. Parolini (PhD student)

Requirements for the admission to the competitive selection:

- PhD in Physics;
- experience in curved spaces as calculable descriptions of field theories in 4D strongly coupled.

Evaluation criteria: curriculum vitae, published works, professional experience.

Duration of the research fellowship: 24 months, renewable for 12 months.

Annual gross employee: € 23.760,00

Financing by SISSA

Approved by the Council of Elementary Particle Theory Sector on 25.01.2012

SISSA Academic Senate on 28.02.12

SISSA Administration Council on 02.03.12



SCUOLA INTERNAZIONALE SUPERIORE DI STUDI AVANZATI

**Position 8 – Elementary Particle Theory – Area: Physics**

Title of the research fellowship: “non-perturbative field theory”

Area: 02 – Physical sciences

*Settore concorsuale: 02/A2 Fisica teorica delle interazioni fondamentali*

Responsible scientist: prof. Giuseppe Mussardo

Members of the research group: prof. G. Mussardo, prof. G. Delfino

Requirements for the admission to the competitive selection:

- University degree in Physics;
- experience in quantum field theory;
- experience in integrable models.

The possession of a PhD in Physics will be considered as an asset.

Evaluation criteria: curriculum vitae, published works, professional experience.

Duration of the research fellowship: 24 months, renewable for 12 months.

Annual gross employee: € 23.760,00

Financing by SISSA

Approved by the Council of Elementary Particle Theory Sector on 25.01.2012

SISSA Academic Senate on 28.02.12

SISSA Administration Council on 02.03.12



SCUOLA INTERNAZIONALE SUPERIORE DI STUDI AVANZATI

**Position 9 – Elementary Particle Theory – Area: Physics**

Title of the research fellowship: “neutrino mixing and oscillation, CP leptonic violation, neutrino nature, leptonic flavour violation”

Area: 02 – Physical sciences

*Settore concorsuale: 02/A2 Fisica teorica delle interazioni fondamentali*

Responsible scientist: prof. Serguey Petcov

Members of the research group: prof. A. Romanino, prof. P. Ullio, dr. A. De Simone, dr. Wei-Chih Huang (research fellowship holder), dr. M. Spinrath (Postdoc), PhD students: A. Meroni and D. N. Dinh

Requirements for the admission to the competitive selection:

- PhD in Theoretic Physics;
- experience in neutrino physics;
- research activity in neutrino physics in the past 2 years.

Evaluation criteria: curriculum vitae, published works, professional experience.

Duration of the research fellowship: 24 months, renewable for 12 months.

Annual gross employee: € 23.760,00

Financing by SISSA

Approved by the Council of Elementary Particle Theory Sector on 25.01.2012

SISSA Academic Senate on 28.02.12

SISSA Administration Council on 02.03.12



SCUOLA INTERNAZIONALE SUPERIORE DI STUDI AVANZATI

Position 10 – **Elementary Particle Theory – Area: Physics**

Title of the research fellowship: “supersymmetry with and without R-parity in LHC”

Area: 02 – Physical sciences

*Settore concorsuale: 02/A2 Fisica teorica delle interazioni fondamentali*

Responsible scientist: prof. Andrea Romanino

Members of the research group: prof. A. Romanino, dr. J. Shu, dr. S. Spinner (research fellowship holders), dr. F. Caracciolo, dr. M. Monaco, dr. D. Marzocca (PhD students)

Requirements for the admission to the competitive selection:

- PhD in Physics;
- experience in supersymmetry with and without R-parity in LHC.

Evaluation criteria: curriculum vitae, published works, professional experience.

Duration of the research fellowship: 24 months, renewable for 12 months.

Annual gross employee: € 23.760,00

Financing by SISSA

Approved by the Council of Elementary Particle Theory Sector on 25.01.2012

SISSA Academic Senate on 28.02.12

SISSA Administration Council on 02.03.12



SCUOLA INTERNAZIONALE SUPERIORE DI STUDI AVANZATI

Position 11 – **Elementary Particle Theory – Area: Physics**

Title of the research fellowship: "LHC Physics"

Area: 02 – Physical sciences

*Settore concorsuale: 02/A2 Fisica teorica delle interazioni fondamentali*

Responsible scientist: dr. M. Fabbrichesi

Members of the research group: dr. M. Fabbrichesi, prof. A. Romanino and prof. S. Petcov

Requirements for the admission to the competitive selection:

- University degree in Physics;
- experience in LHC data analysis;

The possession of a PhD in Physics will be considered as an asset.

Evaluation criteria: curriculum vitae, published works, professional experience.

Duration of the research fellowship: 12 months, renewable for 12 months.

Annual gross employee: € 23.760,00

Financing by SISSA

Approved by the Council of Elementary Particle Theory Sector on 25.01.2012

SISSA Academic Senate on 28.02.12

SISSA Administration Council on 02.03.12





SCUOLA INTERNAZIONALE SUPERIORE DI STUDI AVANZATI

Position 12 – **Elementary Particle Theory – Area: Physics, Statistical Physics activity**

Title of the research fellowship: “quantum entanglement properties in many body systems”

Area: 02 – Physical sciences

*Settore concorsuale: 02/A2 Fisica teorica delle interazioni fondamentali*

Responsible scientist: prof. Giuseppe Mussardo

Members of the research group: prof. Giuseppe Mussardo, prof. Gesualdo Delfino, prof. Andrea Gambassi, dr. Andrea Trombettoni

Requirements for the admission to the competitive selection:

- PhD in Physics;
- experience in quantum entanglement properties in many body systems in the past 2 years.

Evaluation criteria: curriculum vitae, published works, professional experience.

Duration of the research fellowship: 24 months, renewable for 12 months.

Annual gross employee: € 23.760,00

Financing by SISSA

Approved by the Council of Elementary Particle Theory Sector on 21.02.2012

SISSA Academic Senate on 28.02.12

SISSA Administration Council on 02.03.12