Public call for applications for the competitive selection procedure for admission to the 37th Cycle Ph.D. Research Course with administrative seat at the Università del Salento (University of Salento)

This translation cannot be used for legal purposes and is only meant to provide information in English on the call for applications

Applications for the competitive selection procedure must be made within and not after 13:00 (Italian time) on 8th July 2021.

There is no contribution to participate in the competition.

(approved by Rector’s decree. n. 330, on 8th June 2021)

**Article 1) Implementation**

The call for applications for the competitive selection procedure for admission to the three-year Doctoral (Ph.D.) Research Course, accredited by the Italian Ministry of Education, Universities and Research (MIUR) with the approval of Italian National Agency for the Evaluation of Universities and Research Institutes (ANVUR) with administrative seat at the University of Salento is now open.

The detailed description of each Course (the PhD course description) is attached to this call for applications and is to be considered a part of it.

The curricula for the three-year Ph.D. research Courses to be included in the call for applications are the following:

- Diritti e Sostenibilità (Law and Sustainability, see attachment A);
- Filosofia: Forme e Storia dei Saperi Filosofici (Philosophy: Forms and History of Philosophical Knowledge, see attachment B);
- Fisica e Nanoscienze (Physics and Nanosciences, see attachment C);
- Human and Social Sciences (see attachment D);
- Ingegneria dei Materiali e delle Strutture e Nanotecnologie (Material, Structure and Nanotechnology engineering, see attachment E);
- Ingegneria dei Sistemi complessi (Engineering of complex systems, see attachment F);
- Lingue, Letterature, Culture e loro applicazioni (Languages, Literatures and Cultures and their applications, see attachment G);
- Matematica e Informatica (Mathematics and IT, see attachment H);
- Nanotecnologie (Nanotechnology, see attachment I);
- Scienze del Patrimonio Culturale (Sciences for Cultural Heritage, see attachment L);
- Scienze e Tecnologie Biologiche ed Ambientali (Biological and environmental sciences and technologies, see attachment M);
Article 2) Admission Requirements

Admission to the competitive selection procedure to one (or more) of the Ph.D. research Courses listed in article 1 is open to all the citizens, without age or citizenship limitations, who enjoy civil and political rights in their state of residence or origin and who, within the expiry date of this public call for applications, as specified in the following paragraph, hold a degree awarded in accordance with Italian Law n. 341/90, a specialist degree obtained in accordance with DM (ministerial decree) n. 509/99 or a master's degree awarded in accordance with DM (ministerial decree) no. 270/04, or an equivalent foreign degree recognized as equivalent on the basis of international agreements or approved in advance by the Academic Board, for the purpose of the admission to the Ph.D. research course, and on the basis of national legislation.

It is possible to apply for more than one curriculum (see article 1 for a list of the curricula). The detailed notes for each Ph.D. research course (Ph.D. research course descriptions), in attachment to this call for applications (Attachments A-N) contain specific information relative to each course and indication of the specific types of degree required for admission to the competitive selection procedure.

Provided that they make an application by the deadline specified in article 3 below, eligible Applicants also include those who will be awarded one of the aforementioned degrees by October 31st, 2021 (or by a different date that the MIUR (Ministry of Education, Universities and Research) may eventually establish in the case of extension of the same due to the delay in the start of the course activation procedures for the 37th cycle).

Once they have got their degrees, Applicants must immediately submit by email all the required information (name of institution which awarded the degree, date of issue, type of degree, final mark) either by means of self-certification or by means of a substitute declaration as specified by DPR (presidential decree) no. 445/00 (in the case of EU Applicants) or a certificate (for Applicants from outside the EU) accompanied by a copy of a valid identity document to the following addresses amministrazione.centrale@cert-unile.it and master.dottorati@unisalento.it.

Applicants who expect to get their degree by 31st October 2021 will be admitted conditionally to the competitive selection procedure (or within a different date possibly extended by the MIUR- Ministry of Education, Universities and Research). For the places announced and reserved for employees of affiliated public and private bodies, those awarded positions must be employees of the same Body on the date of acceptance of the post at the end of the Rectoral measure approving the ranking.

Even if successful in their application, Applicants will lose any eventual right to register on the Ph.D. research course if they do not present the required documentation and certificates by and no later than 31st October 2021.

Detailed information on the individual Ph.D. research courses (Ph.D. research course descriptions) – included in the appendix to this public call for applications (attachments A-N) – specifies the positions on the courses Applicants may compete for, the grants and scholarships available, and, where foreseen, any positions reserved for specific research themes, financed with grants / scholarships funded under certain Courses / projects or under agreements with external bodies which foresee mandatory research on a precise theme which has already been specified in the attached Ph.D. research course descriptions and the positions reserved for employees of certain entities / companies or academic staff at the Al Akhawayn University of Morocco.
Positions on Courses with grants/scholarships subject to a specific research theme, for the purposes of this call for applications, are those positions, specified in the Ph.D. research course descriptions, which, by their particular nature, cannot be assigned purely and simply on the basis of assessment of the Applicant in the general competitive selection procedure but require further specific assessment beyond that of the general assessment.

An Applicant who wishes to apply to more than one course must submit different online applications to participate in each separate competitive selection procedure.

In addition to applying for positions on Courses with general themes, Applicants can participate in the competitive selection procedure for positions on Courses with grants/scholarships subject to only one specific research theme from among those published for each Ph.D. research course.

This choice must be clearly indicated in the online application by specifying the type of grant / scholarship for the specific chosen research area together with the general field of study.

The Applicant who presents an application for a position with a grant/scholarship subject to a specific research theme (i.e. for a position with an apprenticeship contract), expresses his / her preference for the assignment of the specific position (positions) with grant/scholarship (grants/scholarships).

The choice made by the Applicant is binding and irrevocable and entails the obligation on the part of the same Applicant, in the event that he / she is the Winning Applicant, to accept the position with a scholarship subject to a specific research theme.

Applicants who do not apply for positions on a Course with a grant/scholarship subject to a specific research theme (i.e. for a position with an apprenticeship contract), take part exclusively in the competitive selection procedure for general research positions (with or without a grant/scholarship).

Applicants who wish to apply for positions with a grant/scholarship subject to a specific research theme, will have to carry out research on that same theme, if the grant/scholarship is awarded, and in full accordance with the terms of the agreement stipulated with the external funding bodies, and accepting any obligations set out in the same agreement.

Grants/scholarships subject to a specific research theme may amount to a different sum than the standard one established for general research theme scholarships by D.M. (ministerial decree) no. 40/2018.

Indication of any different amount of the published grants/scholarships is contained in the Ph.D. research course descriptions of the individual Ph.D. research courses attached to this call for applications.

Aptitude or experience regarding the research theme chosen must be declared when submitting the application for participation in the competitive selection procedure and will be evaluated by the Admissions Board during an interview.

The course descriptions of the PhD Research courses attached to the Public call for applications provide places reserved exclusively for lecturer of the Al Akhawayn University in Ifrane (Morocco).

Only lecturers of the Al Akhawayn University in Ifrane (Morocco) will be able to apply for reserved positions.

The PhD research course in Biological and Environmental Sciences and Technologies also includes one position reserved for foreign students within Departments of Excellence (topic n. 1).
Each PhD course also provides for n. 1 place reserved exclusively for lectureres of the Al Akhawayn University in Ifrane (Morocco) who will apply exclusively for the reserved ranking that concerns them.

Article 3) Application Procedure

Applications for the competitive selection procedure must be made within and not after **13:00 (Italian time) on 8th July 2021**.

The application shall be made, under penalty of exclusion, **exclusively online**, by following the appropriate procedure made available at: [https://studenti.unisalento.it](https://studenti.unisalento.it)

To access the procedure, you must:

- a) Log on to the said website [https://studenti.unisalento.it](https://studenti.unisalento.it) and select, in the top right corner, in the MENU tab, your chosen language (Italian or English).
- b) If the Applicant has not already registered, complete the registration process, clicking on "REGISTRAZIONE" in the “AREA RISERVATA”, or access using your credentials;
- c) The applicant who has already registered on Esse3 can directly access the above mentioned website (accessing from "Authentication procedure - LOGIN") and log in with the credentials he/she already have.

On the other hand, foreign applicants will be able to access the website [https://studenti.unisalento.it](https://studenti.unisalento.it) through "Registration for foreign candidates"/“Registrazione per candidati stranieri” without having to activate the SPID.

All other applicants must activate SPID level 2. The information needed to activate SPID can be found at [https://www.spid.gov.it/richiedi-spid](https://www.spid.gov.it/richiedi-spid);

- d) Go to the portal (authentication - LOGIN) on the banner “Accedi al Portale degli studenti” and click on “REGISTRAR’S OFFICE/ADMISSION TEST/ISCRIZIONE CONCORSI/DOTTORATO DI RICERCA”.

Choose the Doctorate Course on which you intend to apply and, after carefully reading this call for application and its attachments, complete the on-line application form, entering all the required data. The procedure described in this paragraph is obligatory in order to be admitted to the competitive selection procedure.

- e) Complete the online application form and attach all required documents in pdf, jpeg or tiff formats.

It should be noted that for competitive selection procedures that include positions with a general research theme and places with a specific research theme, the choice of the type of position for which you intend to apply must be made in the drop-down MENU under "ADMINISTRATIVE CATEGORY".

The online procedure for the submission of the application for participation in the competitive selection procedure will be available at [https://studenti.unisalento.it](https://studenti.unisalento.it) from **15:00 (Italian time) on 10 June 2021**.

**ITALIAN TAX CODE (CODICE FISCALE) FOR FOREIGN APPLICANTS**

N.B. For first time users, the system will require mandatory indication of their Italian tax code (codice fiscale).

International students who do not have an Italian tax code will be directed to the following link: [www.codicefiscale.com](http://www.codicefiscale.com) where he or she can obtain one, simply by inserting the name of the country.
or state in which he or she was born (e.g. someone who was born in Paris should simply put "France").

APPLICATION PROCESS

Applicants are kindly requested to rigorously follow in detail all the following instructions:

- **The files required by the electronic procedure must be attached in pdf, jpg and tiff formats. These files must be inserted in the relevant section of the online procedure and must be named in the following manner:**
  - identity card: CI_Applicant’s name (eg. CI_JACKSON)
  - curriculum vitae: CV_Applicant’s surname (e.g. CV_JACKSON)
  - self-certification of exams: ESAMI_Applicant’s surname (e.g. ESAMI_JACKSON)
  - other qualifications: TITOLO_1_Applicant’s surname; TITOLO_2_Applicant’s surname; TITOLO_3_Applicant’s surname; etc;
  - research project: PROGETTO_PHD in_Applicant’s surname;
  - account for interview: ACCOUNT_INTERVIEW_Applicant’s surname (e.g. ACCOUNT_INTERVIEW_JACKSON);
  - co-tutor (only for the Ph.D. research course in “Filosofia: Forme e Storia dei saperi filosofici” for which one is expressly required): cotutor_Applicant’s surname (e.g. COTUTOR_JACKSON);
  - curriculum and lines of research (only for the Ph.D. research course in “Human and Social Sciences”: lines_research_Applicant’s surname.
  - letter of presentation (for the doctoral course in "Physics and Nanosciences": letter_presentation_Applicant’s surname;

In the section related to the insertion of TITLES under "TYPOLOGY", the system asks to choose from a drop-down menu among various items (e.g. C.V., CARTA DI IDENTITA'/IDENTITY CARD, Progetto di ricerca/Research Project, Autocert. Esami/Self-certification of exams, Altri titoli/Other qualifications, etc.).

For each TYPOLOGY OF TITLE entered, the applicant must fill in the TITLE section.

The applicant must include the following information in that section:

- for the TITLE related to the "CARTA DI IDENTITA'/IDENTITY CARD” it will be necessary to insert "CI_surname applicant" (eg. CI_JACKSON);
- for the TITLE related to the C.V. it will be necessary to insert "CV_surname applicant" (e.g. ESAMI_JACKSON);
- for the TITLE related to the “Progetto di ricerca/Research Project” it will be necessary to insert "Research Project_surname applicant" (e.g. Research Project_JACKSON);
- for the TITLE related to the “Autocertificazione Esami/Self Certification Exams” it will be necessary to insert "Exams_surname applicant";
- for the TITLE related to the “Autocertificazione Esami/Self Certification Exams” it will be necessary to insert "title 1_surname applicant", "title 2_surname applicant", etc.
- for the TITLE related to the co-tutor (for the courses that provide it) it will be necessary to insert " co-tutor_surname applicant".

Compliance with the above instructions will allow the Admissions Board to review the uploaded documents swiftly. It will also reduce the risk of dispersion of IT documents with objects that are too long during the transfer of data from the online platform.
The University of Salento declines any responsibility in those cases in which the Applicant proceeds
to the transmission of the documents without following the instructions above in the naming of the
attached files.

COMPLETING THE ONLINE REGISTRATION PROCEDURE

The online registration procedure terminates with the printing out from the student portal of the
receipt of the application for admission to the completive selection procedure.
Once the Applicant has printed out the “admission test application”, upon completion of the online
procedure, he or she can consider that his or her application to participate in the competitive
selection procedure has been correctly completed.
With the online submission of the application the Applicant:
- assumes personal responsibility, pursuant to article 46 and 47 of DPR (presidential decree)
  445/2000, regarding the declarations he or she has made and the files attached to the online
  application, in full awareness of the criminal penalties deriving from false statements and / or false
  declarations;
- examines the methods of processing of his or her personal data.

N.B. Applicants are invited to submit their application to participate in the competitive
selection procedure well in advance of the date (and time) of the deadline for
submission of the application to avoid problems of various kinds that could jeopardize
the successful outcome of the application transmission procedure.
Indeed, near the expiry time, because of overload due to the high number of users who are
completing the online procedure, the system may be subject to slowing down.

It is possible to apply for more than one Ph.D. research course; in which case, the Applicant will have
to complete more than one online application for each competitive selection procedure for which he
/ she intends to participate.
Each candidate may submit only one research project for each PhD course for which he / she is
applying.
If the Applicant foresees that they will obtain a qualification by October 31st 2021, he / she must
expressly indicate this fact in the application by filling in the section regarding qualifications for
admission with the insertion of the “titolo in ipotesi” (“hypothetical qualification”). In such a case,
the Applicant will be admitted to the competitive selection procedure “con riserva” (conditionally).
In order to be constantly updated on news regarding this call for applications, the Applicant can
subscribe to the RSS feed associated with the web page of the competitive selection procedure, by
clicking on the icon labelled “Sottoscivi Rss” (“Subscribe to RSS feed”) on the page of the call for
applications on the University of Salento website and adding it to his or her own RSS reader.

Article 4) Documents to be submitted

Together with the application for participation in the competitive selection procedure, completed
online, the Applicant should attach the files containing:
1. a valid identity document.
2. a curriculum vitae containing, among other things, reference to a telephone number and an email address that may be used for all subsequent official communications related to the competitive selection procedure (e.g. notifications in the event of Applicants dropping out and those below them in the rankings being moved up, or the awarding of extra grants/scholarships for innovative Ph.D. research projects) and subsequently, in the event of a successful application for admission to the Ph.D. research course, the official notification on the part of the relevant office and the Coordinator;
3. information relating to the Applicant’s completed studies (self-certification or photocopy of a transcript of records indicating the exams taken and the marks obtained on the occasion of the attainment of a three-year, specialist, or Master’s degree or a degree of the Vecchio Ordinamento -- an Italian degree of the format before the Bologna Process reforms), with the indication of the relative average of marks and of the total duration of the Ph.D. research course in question; students who have not yet completed their degree will be assessed on the basis of the average marks obtained in the exams up to the moment of submission of the application for participation in the competitive selection process;
4. documentation certifying that the Applicant meets the qualifications / experience / activities indicated by the individual Ph.D. research course descriptions attached to this call for applications, which the Applicant possesses and desires to be evaluated by the Admissions Board;
5. your research project (which must be presented together with the application for participation in the competitive selection procedure for all the PhD research courses). These candidates will be evaluated, as far as the first test is concerned, on the research project presented and therefore will not take the written test. Each candidate may submit only one research project for each PhD course for which he / she is applying.
6. the form with the mail account to with the admissions board of the competitive selection procedure send an invitation to the interview which will be carried out through MICROSOFT TEAMS.

The online application is to be considered, for all legal purposes, as an act of self-certification of personal data, of the declared qualifications and the statements made as well as of the attached research project (where one is required) and therefore, with the presentation of the online application, the Applicant assumes personal responsibility, pursuant to articles 46 and 47 of DPR (presidential decree) 445/2000, regarding the declarations he or she has made and the files attached to the online application, in full awareness of the criminal penalties deriving from false statements and / or false declarations.

Article 5) Supplementation/ correction of the application

The application form may be corrected /supplemented exclusively by electronic means within the deadline for submitting the electronic application indicated in the previous art. 3. In order to modify/supplement the application, the applicant must access again the website studenti.unisalento.it and click on "MENU" by selecting "ADMISSION TEST/CONCORSI". So he/she may select the competition for which he/she wants to modify the application from "LISTA CONCORSI A CUI SI E' ISCRITTI". Then it must click on "PROCEED WITH ADMISSION" and finally on "COMPLETA IL PROCESSO SELEZIONATO" at the bottom of the page.
Thus the applicant may access again the submitted application and proceed to replace, delete or add further documents. At the end of the modifications, the applicant will have to transmit the new application form that will automatically replace the previous one already sent.

The new application generated by the system will permanently cancel the previous one, so it is recommended to check the correctness and completeness of the documents attached to the last application submitted.

**Article 6) Applicants with a qualification awarded by a university outside Italy**

Applicants who are in possession of a degree awarded by a university outside Italy which has not yet been declared as equivalent to an Italian degree on the basis of international agreements, must accompany the application form with the following documents:

- Certification of the foreign qualification, together with a translation into Italian or English to be included in the "altri titoli" (other qualifications) of the online application; it must include explicit indication of the university exams taken and grades obtained.

The Admissions Board appointed for admission to the Ph.D. research course will, on the basis of the documentation attached by the Applicant, ascertain the eligibility of the foreign qualification for admission to the Course, "in accordance with current legislation in Italy and in the country where it was awarded and with international treaties or agreements concerning the recognition of qualifications for further education."

In case of admission to the Ph.D., successful Applicants in possession of such qualifications awarded outside Italy must submit, within sixty (60) days from the date of registration, the following documentation:

- certificates and diplomas translated and legalized by the competent Italian diplomatic or consular representation abroad;
- declaration of value of the foreign qualification issued by the competent Italian diplomatic or consular representatives abroad.

**Article 7) Responsibility**

The University of Salento does not accept any liability in the event of loss of communications due to: incorrect information about the residence or the address of the Applicant; an Applicant’s failure or delay in notifying it of a change of address; or technical problems attributable to the email address indicated by the Applicant.

Disabled Applicants, recognized under Italian Law no. 104 of 5 February 1992, must explicitly request in their application form the required support, in relation to their disability, as well as give notification of the possible need for additional time for the completion of the admissions tests.

**Article 8) Exclusion**

The following applications will be automatically excluded:
a) applications made and / or received in a manner or timing not in accordance with that specified in article 3 above of this call for applications;

b) applications from Applicants who do not possess the specific qualifications indicated in the Ph.D. research course descriptions in the appendix to the call for applications or who do not obtain them by the deadline of 31st October 2021;

c) applications without a research project, which must be attached when submitting the application form within the deadline specified in article 3 of this call for applications, this refers exclusively to those Ph.D. research courses that require, as specified in the Ph.D. research course descriptions attached to this call for applications, the assessment of the project itself as part of the assessment process: ................................................................. to be attached electronically already at the time of submitting the application for participation in the terms referred to in the previous Article 3, for all PhD courses.

d) applications that lack a copy of a valid identity document, which must be uploaded when submitting the online application form.

Any supplementations or corrections to the application not made according to the provisions of Article 5 of this call for applications or made after the deadline has passed, will not be considered valid.

Failure to provide a curriculum vitae or failure to indicate the university exams taken (with relative average marks) or other qualifications assessed by the Admissions Board, indicated in the relevant Ph.D. research course descriptions, will prevent the Admissions Board from being able to assign any mark under the heading "TITOLI" (qualifications).

In the case of those Applicants who, on the date of application for admission to the competitive selection procedure, are not yet in possession of the degree required to take part in the competitive selection procedure, the Admissions Board may decide to evaluate this qualification, as an alternative to the final degree mark, on the basis of the average mark of the exams sustained in the second level degree course, on the basis of a correspondence criterion that shall be established beforehand.

Likewise, the Admissions Board must establish correspondence criterion in advance with regard to the evaluation of the degree mark obtained abroad by an Applicant.

Candidates are required to verify admission to the interview on the date established for the presentation of the results of the research project and in the case of admission to the interview, they are required to connect on the day and at the time indicated to do the interview via the MICROSOFT TEAMS platform.

During the interview, the candidate must guarantee the use of a webcam to allow his / her selection to be identified by the Admissions board and must connect in the manner prescribed by the Commission for the oral examination.

For identification purposes, and under penalty of exclusion from the selective procedure, each candidate is required, before the interview begins, to allow the Commission to identify him, showing the same Identity document already sent, in copy, as an attachment to the application.

Failure to connect, the unavailability of the candidate on the day and time established, or the failure to show a valid identity document are all grounds for exclusion from the selective procedure.

As regards, Applicants excluded from the competitive selection procedure for the reasons referred to in the previous paragraph, the administration will proceed, compatibly with the timing of the competitive selection procedure, to give them written notice, by email, to the address indicated by them in the curriculum vitae that they attached to the application form.

**Article 9) Procedure for competitive selection of Applicants**
The competitive selection of Applicants will be carried out according to the timetable which will be published on the University of Salento website for each of the competitive selection procedures (see attachments A-N), at the following link “Bandi e Concorsi/Concorsi/Ricerca/Bandi per Dottorati di Ricerca”.

If impediments of any kind do not permit the respect of the examination schedule as indicated in the previous paragraph, the University of Salento will publish a notice with all the necessary changes, within three days prior to the date set for the test. This notice will be published exclusively on the website of the University of Salento at www.unisalento.it in the ”News” section and the dedicated section “Dottorati di Ricerca / Bandi per Dottorati di Ricerca”.

Both will be considered as official notification to Applicants.

Assessment of applications will be carried out by a single Admissions Board for each Ph.D. research course that will be appointed by the Rector of the University of Salento and composed of between three and five members, proposed by the Ph.D. research course’s Academic Board, from among professors and researchers in the relevant Ph.D. research course’s subject area.

No member of the Academic Board will be able to take part in Admissions Boards for the same Ph.D. research course in two subsequent academic cycles, nor will he or she be able to be subsequently part of final exam adjudicating boards that evaluate the thesis Ph.D. students for whom they were on the Admissions Board.

By means of the decree appointing the Admissions Board, the Rector also appoints two professors proposed by the relevant Ph.D. research course’s Academic Board as substitutes for the effective members in the event of one or more of them being incapacitated or absent.

In the case of doctorates established as a result of international inter-university cooperation agreements, the Admissions Board and the admission procedures are defined in accordance with those same agreements.

The Ph.D. research course Academic Board can propose, in addition to the components indicated above, no more than two experts, including those from abroad, chosen from public and private research bodies and institutions.

In such a case, the experts enter the Admissions Board as full members.

In the event of incapacitation, withdrawal or absence of one or more effective members of the Admissions Board, at any stage of the competitive selection procedure, the coordinator shall make the necessary replacements, based on the names of the substitutes specified in the Rector’s decree nominating the Admissions Board, taking into account, where possible, the scientific affinity between the member being replaced and his or her substitute.

Pursuant to Article 16. of the Code of Ethics ”Obligations of effectiveness in comparative evaluations”, as also stated in DR. (Rector’s decree) 1323 (19/11/2012) of the University of the Salento:

"... 1. In all comparative evaluations for the award of scholarships, Ph.D., post-Ph.D. or research grants or specialization contracts as well as in competitive selection procedures for research positions and in all the procedures of recruitment, transfer or recruitment of full and associate professors and in the conferment of teaching courses, the members of adjudicating board, belonging to the University staff regardless of their role, must state that they have read Chapter II of the Code, indicating any cases where these same articles have not been applied..

2. All the teaching staff is committed to ensure that scientific and professional collaborations between themselves and their employees are not based on commonality of personal interests that give rise to the suspicion that any comparative assessments of the Applicants are not carried out..."
on the basis of objective findings, but instead by virtue of personal acquaintance with any member of the adjudicating board ... ".

The competitive selection procedure to the Ph.D. research course and the corresponding marks that may be awarded are indicated in the Ph.D. research course descriptions (attachments A to N of this call for applications).

The competitive selection procedure will aim to determine not only the knowledge acquired with reference to the research areas of the Ph.D. research course, but also to determine the scientific maturity, flexibility, and resourcefulness of the Applicant in the face of possibly new areas of research.

The competitive selection procedure will be carried out, pursuant to article 12 of the University Regulations on Ph.D. research courses, by:

a) the assessment of qualifications (curriculum, university training course, professional experience and research);

b) the assessment of a written test or a research project, depending on the provisions of the individual Ph.D. research course descriptions.

c) an interview (viva voce) aimed at verifying the Applicant's knowledge and aptitude in research regarding the themes of the Ph.D. research course.

Applicants are admitted to the interview only if they obtain a mark of at least 30/100 in the assessment of the written exam or research project outlined in letter b) of the preceding paragraph.

The communication of the results of the assessment of the first stage (written test or research project) will be as specified in the Ph.D. research course descriptions, attached to this call for applications, and which is an integral part of said (attachments A to N).

In the event that a Applicant has submitted an application for a position on a Ph.D. research course with a grant/scholarship subject to a specific research theme, as well as for a position on a general Ph.D. research course, the interview will be both on the general issues as well as on the specific theme and will therefore be carried out separately but at the same location and on the same date.

The first two tests (assessment of the research project or written test and assessment of qualifications) and their marks will be common to both types of positions (general and specific research themes).

The third test (interview) will be carried out separately, preferably at the same location and on the same date, for the position on a Ph.D. research course with a general research course and for a Ph.D. research course on a specific research theme indicated by the Applicant, according to the procedures described in the preceding paragraph and will give rise to distinct and separate marks.

Applicants who have opted to compete for positions on both general Ph.D. research Courses and on Ph.D. research course with a grant/scholarship subject to a specific research theme and have completed all the stages of the competitive selection
procedure successfully will be included, subject to the conditions referred to in the previous paragraph, in the two separate rankings with the relative marks. Applicants who have not obtained a grade of at least 60/100 in the ranking for the positions on a general Ph.D. research Course shall not be included in the rankings for the positions on Ph.D. research courses with a specific research theme.

In the event that the same Applicant is the Winning Applicant, at the same time, of a position on a Ph.D. research course with a general themes with a grant/scholarship and a position on a Ph.D. research course with a grant/scholarship subject to a specific research theme, then the University of Salento will proceed to give him/her the position on the Ph.D. research course with the specific research theme.

The Winning Applicant for a position on a Ph.D. research course with a general theme who is already enrolled on the Course will be required to accept the position on a Ph.D. research course with a specific theme with a grant/scholarship, if those above him or her in the ranking renounce the offered position. Grants/Scholarships for specific research themes will not be awarded if there are no Winning Applicants for the relevant Ph.D. research course with a specific theme.

Positions on Ph.D. research courses with a general theme, with or without a grant, and positions on a Ph.D. research course with a grant/scholarship subject to a specific research theme will be awarded by Rector’s decree to Applicants who are at the top their rankings up to the number of positions available for each Course, based on the principles and according to the procedures described above.

For those Ph.D. research courses that provide positions (with or without scholarship) reserved for Applicants who have graduated abroad, in the event that nobody who graduated abroad qualifies, the University of Salento will proceed, pursuant to the combined provisions of the article 8, paragraph 2, penultimate period of the D.M. (ministerial decree) no. 45/2013 and paragraphs 4 and with paragraph 1 of the same article 8 to assign the reserved place to the ordinary ranking of suitable Applicants.

If two or more Applicants are awarded the same final mark, the youngest Applicant has precedence in accordance with article 2, paragraph 9, of Italian Law no. 191/98.

Where a grant must also be awarded, however, the following criterion is applied: article 7, fourth paragraph, of D.M. n. 224/99, namely the assessment of the Applicant’s financial situation.

In case of a tie, therefore, the scholarship will be awarded to the Winning Applicant in possession of a lower ISEE (level of income).

The rankings will be approved by the Rector by decree and published at www.unisalento.it in the “Dottorati di Ricerca” (Ph.D.) section via the link “Bandi e Concorsi” (Calls and Competitive Selection), as well as the in online section of the “Albo” (official register), which will be considered as official notification to Applicants.

This Administration will not send individual messages to interested parties considering the publication of the rankings in the forms and in the manner described above.

**Article 10) Innovative Ph.D. research courses and regional grants**

The number of positions and scholarships published with the aforementioned provision may be the subject of a subsequent extension due to the University's participation in competitive bids or public calls for tenders announced by public or private bodies, including:

- public notice announced by MIUR (Ministry of Education, Universities and Research) directorial decree concerning "Dottorati di ricerca innovativi a caratterizzazione industriale"
(Innovative Ph.D.s of an industrial character) aimed at the promotion of Ph.D. training initiatives with high relevance to industry and the involvement of companies, through the funding of Ph.D. grants/scholarships in the Programma Operativo Nazionale Ricerca e Innovazione (PON RI) (National Operational Course for Research and Innovation) 2014-2020 - Priority axis I "Investments in Human Capital" - Action I.1 which provides for this possibility, for the academic year, 2021/2022 - 37th cycle.

The award of the relative scholarships will be made using the general ranking of the competitive selection procedure in the order of the same according to criteria that will be specified later in compliance with the call and ministerial regulations.

b) Call of the Sanpalo Onlus Foundation for “Dottorati e/o Progetti di ricerca in materia umanistica” (Ph.D. and/or research projects in the humanities) for the financing of scholarships to the amount of € 70,000, to be assigned, in the event of financing, to Applicants in possession of the requirements stipulated in the call for applications issued by the aforementioned Foundation).

c) “Apulia Region” call for PhD positions regional public (Avviso Pubblico n. 1 POC/2021 “Dottorati di ricerca in Puglia XXXVII ciclo”) which finances additional scholarships for PhD courses.

The procedures for the allocation of the related scholarships will be made on the basis of the rules contained in the same calls, using the rankings of the competitive selection procedure for the 37th cycle of the Ph.D. research courses referred to in this call for applications.

Article 11) Enrollment on the Ph.D. research course

All Applicants admitted to the Ph.D. research course are required, under penalty of forfeiture, to proceed with online registration to the same, within 15 days of the date of publication of the rankings on the University website www.unisalento.it in the section dedicated to “Dottorati di Ricerca” (Ph.D.) via the link Bandi e Concorsi (Calls and Competitive Selection), and in the online Albo (Official register), following the procedures that will be indicated in a special document that will be published together with the decree approving the workings of the Admissions Board.

Winning Applicants will not be contacted individually.

To enrol on the course all Winning Applicants (including Winners of grants/scholarships) will have to pay, within the peremptory term of 15 days, in a single payment the Puglian (Apulian) regional tax for “diritto allo studio” (Right to Education), at the time of enrolment or in the second year of the Course.

Winner Applicants who fail to register for the first year within the time limits indicated above will be considered to have tacitly renounced their position.

The University of Salento at any time of the procedure and also after the start of the Ph.D. research course, may carry out targeted and random checks, under article DPR 71 (presidential decree) no. 445 of 28 December 2000, regarding the information and declarations produced by the Applicants, regarding the validity of the documents attached by the Applicants to the online application and it may also request the original of the aforementioned documents.

The University of Salento can decide at any time, with appropriate motivation, to exclude Applicants from the competitive selection procedure due to an absence of the requisites required by the call for applications.

Article 12) Renunciations and Scrolling of the Rankings
In the event of renunciation or withdrawal by the Winning Applicant for a position (with or without grant) the position that has become available will be assigned by the Director of the Graduate School according to the order of the rankings approved by Rector’s decree. In such a case, the new Winning Applicant who has been moved up in the rankings will have a period of five days from individual notification to proceed with the acceptance of his/her position. Where the forfeiture or renunciation of the position on the Ph.D. research course occurs at a date after the beginning of the first year of the Course, but no later than 31st December of the same year, except in the event of additional positions with grants/scholarships being financed by external bodies or deriving from the participation of the University of Salento in competitive selection procedures (e.g. innovative Ph.D. research courses) for which it will be exceptionally possible to proceed even after this deadline depending on the timing of the publication of the relative rankings.

Article 13) Grants, rights and obligations of Ph.D. students

Successful Applicants must declare in their application:
- that they have not previously received any other grants/scholarships for the attendance of a Ph.D. research course;
- that they will undertake not to cumulate the amount of the grant/scholarship with any other grant/scholarship for any reason whatsoever, except with those explicitly granted, in addition to the Ph.D. research course grant/scholarship, by national or international institutions to allow training or research abroad or anywhere else away from the seat of the Ph.D. research course;

Scholarships will last one year and shall be renewed provided that the student has completed the course of activities for the previous year, subject to the obligation to disburse the grant/scholarship after passing the evaluation to be carried out by the Academic Board by September 31th of each academic year. The confirmation of the grant/scholarship for the years subsequent to the first is done by formal resolution of the Academic Board of the Ph.D. research course in question. A negative judgment on the part of the Academic Board will result in the forfeiture of the doctorate. The amount of the grant is determined by the Ministry of Education, Universities and Research (MIUR) decree of January 25, n. 40/2018. This amount may be adjusted with any increase envisaged by law and by ministerial norms and regulations on the subject. The duration of the scholarship is equal to that of the Ph.D. research course (three years).

For positions with scholarships financed under specific European Union and international collaboration projects activated within the framework of Ph.D. research courses, the basic amount of the ministerial scholarship can be increased in order to guarantee organizational methods that take into account the characteristics of the individual projects, in accordance with the combined provisions of articles 8, paragraph 5, of DM (ministerial decree) 8 February 2013, no. 45 and of article 11, paragraph 2, of the Ph.D. research courses regulations of the University of Salento issued by D.R. (Rector’s decree) n. 509/2019. Grants/Scholarships of a different amount than the basic one, where foreseen, are preventively identified in the Ph.D. research course descriptions attached to this call for applications. The grant is paid by means of monthly payments, in arrears.
The amount of the scholarship is increased by 50% for any periods of residence abroad, from a minimum of 20 consecutive days to a maximum of 18 months, except as provided for in the case of special agreements.

The Ph.D. research course has a duration of three years.

Students are required to attend the courses and carry out the teaching, study and research activities envisaged by the Academic Board and to present, at the end of each year of said course, to the Academic Board, a report on the research activity carried out and the results achieved, in the terms and in the manner established by the Academic Board itself and on the basis of the indications contained in the operational indications issued by the Rector with protocol no. 42975, on 03/27/2020.

The evaluation of the Ph.D. students’ activities must be carried out by the Academic Board at least once a year, generally within 30 days from the end of the Ph.D. research course year.

The presentation of the thesis for the final exam must take place within the deadline set by article 19 of the Ph.D. regulations currently in force. The Academic Board will submit the thesis to the assessors only in the event of a positive judgment granted to the candidate’s course of studies and the achievement of the necessary ECTS in the three years of the course.

For anything not specified in this article about the rights and duties of Ph.D. students and the institution of the interruption, suspension, revocation or withdrawal from the Course, please refer to the provisions article 22 of the regulations in force regarding Ph.D. research courses issued by Rector’s decree no. 509/2019.

**Article 14) Exemption from contribution for accessing and attending the Course**

All students enrolled in Ph.D. research courses are exempt from the payment of fees for access and attendance of the said courses, in accordance with the provisions of article 11, paragraph 11, of the University Regulations in force regarding Ph.D. research courses.

**Art. 15) Regional tax for the Right to Education**

All students enrolled in the Course of study will have to annually pay the amount of the regional tax for the Right to Education in accordance with the amounts set annually by the Puglia region Right to Education agency (ADISU) pursuant to art. 11 of Italian Regional Law (Puglia) 45/2012.

The amounts to be paid will vary on account of the student’s ISEE (level of income) values at the time of enrolment:

<table>
<thead>
<tr>
<th>Regional right-to-study tax</th>
<th>ISEE (level of income) values</th>
</tr>
</thead>
<tbody>
<tr>
<td>€ 120,00</td>
<td>Students with ISEE equal or inferior to € 19,000,00</td>
</tr>
<tr>
<td>€ 140,00</td>
<td>Students with ISEE between € 19,001,00 and € 38,000,00</td>
</tr>
<tr>
<td>€ 160,00</td>
<td>Students with ISEE equal or superior to € 38,001,00</td>
</tr>
</tbody>
</table>

In case of failure to indicate their ISEE value, the student will be liable to the highest level of regional tax (€ 160,00).
The amount of the regional tax for the Right to Education and the values for the ISEE bands may be subject to change according to regional regulations. In such a case, further details will be communicated.

Article 16) Exemption for Ph.D. students with disabilities

Specific forms of total or partial exemption from the payment of taxes and / or contributions for disabled students are envisaged, both with a degree of disability, following the Italian scale of disability, equal to or greater than 66%, and with disability between 31% and 65%.

Students with a recognized disability equal to or greater than 66% are exempt from paying taxes and contributions.

Students with disabilities between 31% and 65% benefit from a partial exemption from the registration fee with linear application until it is zeroed for percentages greater than or equal to 65%.

Art. 17 - Intellectual property of research results and publications

Without prejudice to the Italian copyright law (Legislative Decree 633/1941 and subsequent modifications), The intellectual and industrial property rights regarding the results achieved by the PhD student, including, by way of example and not limited to, software, industrial inventions, whether patentable or not, know-how, models, data and data collections, are regulated in accordance with the current legislation and the University regulations and, possibly, on the basis of what is established in the individual agreements with the universities, companies or entities involved.

Article 18) Procedure for attaining a “Dottorato di ricerca” (Doctor of Philosophy – Ph.D.)

The procedures relating to the presentation of the Ph.D. thesis and the appointment of the Evaluators and Final Examination Board are contained in the guidelines for the conferment of the title of “Dottorato di ricerca” (Doctor of Philosophy – Ph.D.) attached to the D.R. (Rector’s decree) n. 105, on 02/21/2017.

The timing of the presentation of the doctoral thesis is instead fixed by article 19, third paragraph of the current Ph.D. research course regulations issued by Rector’s decree n. 509/2019.

The procedures relating to the composition of the board for the final exam, its composition and the methods of carrying out the final exam are contained in articles 19 and 20 of the aforementioned university Ph.D. research course regulations.

Article 19) Final Thesis
Ph.D. theses must be in digital format in order to allow their filing, as required by law at the National Libraries of Rome and Florence and at the University of Salento open-access institutional archive if it is already active and available. The conferment of the certificate of attainment of the title of “Dottorato di Ricerca” (Doctor of Philosophy – Ph.D.) is dependent on the depositing, by the interested party, of the final thesis in the University of Salento open-access institutional archive which will guarantee its preservation and availability for public consultation and which will deposit the said thesis, as required by law, at the National Libraries of Rome and Florence.

Article 20) Accessibility of Ph.D. theses

Accessibility to the Ph.D. thesis in the University of Salento open-access institutional archive may be subject to restrictions, for the following reasons:

a) parts of the thesis have already been submitted to a publisher or are awaiting publication;

b) the thesis contains sensitive content data (article 4 of decree n. 196, June 30, 2003)

c) the thesis is financed by external entities that have rights over it and over its publication;

d) parts of the thesis have been discussed at a date that is earlier than the discussion and thus subject to patent protection;

In the cases referred to in letter b), the thesis will only be made available if it is possible to make the data anonymous.

As for the other cases, there could be a 12-month suspension of free access, but only after the Academic Board has expressed its approval and following a reasoned request on the part of the student countersigned by his/her tutor.

The suspension of free access can be extended, with a similar procedure, for a further 6 months. Any request for a longer suspension period, in any case not exceeding three years, in exceptional and duly justified cases will be evaluated by the Rector.

At the end of the suspension period, the thesis will however be made freely available for consultation.

Article 21) Reference Regulations

Those matters which are not covered by this call for applications are subject to the rules laid down in the University Regulations for the establishment and organization of Ph.D. research courses (DR. Rectors decree no. 509/2019).

The following applies to public employees enrolled in the Ph.D. research courses: article 2, paragraph 1, of Italian Law no. 476/84 as recently amended with Italian Law n. 240/2010.

This call for applications contains an English translation that cannot be used for legal purposes and is exclusively designed to assist foreign Applicants.

Article 22) Privacy policy

Article 13 of Italian Law no. 196 (30 June 2003) establishes that the personal data provided by the Applicants to the University of Salento at the time of application shall be used exclusively for institutional purposes and for the completion of any inherent procedures conducted by the persons carrying out the competitive selection procedure, also by the Admissions Board (at the University of Salento, Ufficio Master e Dottorati), even with the use of computerized procedures, in the manner
and within the limits required for the above purposes, even in the event of any communication to third parties pursuant to current national and EU legislation. Providing such information is necessary to assess the Applicants’ eligibility and qualifications and failure to do so may preclude such an assessment.

Applicants are entitled to various rights under article 7 of the Italian Law no. n. 196/03, in particular, the right to access their personal information, to request correction, supplementation and cancellation if such information is incomplete, incorrect or collected in violation of the law, and to oppose their processing for legitimate reasons by directing requests to the Rector of the University of Salento, Viale Gallipoli, 49 - 73100 Lecce.

Article 23) Responsible parties for the application and competitive selection procedure

The Master and Dottorati Office at the Università del Salento is responsible for any procedural aspect related to this call for applications.

The person in charge of the administrative procedure and data processing is indicated in the attached sheets (A – N).

One can also contact the Ufficio Master e Dottorati at the following telephone numbers ++39 (0)832/9210-9228-9041-9210; e-mail addresses: master.dottorati@unisalento.it;

Foreign applicants can request information on the admission procedures to the PhD competition to the WELCOME OFFICE (welcome.office@unisalento.it).

Article 24) Final Provisions

This call for applications will also be advertised by electronic means on the site www.unisalento.it in the "News" section and in the “Dottorati di Ricerca / Bandi per Dottorati di Ricerca” section, as well as on the European Euraxess website and on the Italian Ministry of Education, Universities and Research (MIUR) website.

The Rector
(Prof. Fabio POLLICE)
SUBJECT: Competitive selection procedure for the PhD in …………………………………………” – 37 th cycle.
Account for an interview via MICROSOFT TEAMS.

To the person responsible for the admissions procedure

The undersigned, born at ____________, resident in ____________, tel. ____________, mail ____________, having
applied to participate in the competitive selection procedure for admission to the PhD Course in
__________________________, approved by D.R (rector’s decree)

INDICATES

☐ the following mail account for the interview via a video call using the "Microsoft TEAMS" system (write
clearly and legibly):

__________________________________________________________________________________

N.B. This form must be attached by the candidate in the telematic platform in the section named “Account Microsoft Teams”.
### CORSO DI DOTTORATO IN “FISICA E NANOSCIENZE”
PhD school in “Physics and Nanoscience”

<table>
<thead>
<tr>
<th>Dipartimento proponente</th>
<th>Dipartimento di Matematica e Fisica “Ennio De Giorgi”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department</td>
<td>Department of Mathematics and Physics “Ennio De Giorgi”</td>
</tr>
</tbody>
</table>

**Coordinatore**

Prof. Claudio Corianò  - numero mobile: 327 1136871

Mail: claudio.coriano@le.infn.it

**Durata**

3 anni  
3 years

**Posti e borse di studio**

Numero complessivo di posti 10

**Posti con borsa di studio** 8

di cui:

- Borse di studio su fondi d’Ateneo 3
- Borse finanziate da INFN 1
- Borse finanziate da IIT 2
- Borse finanziate da CNR Nanotec 1
- Borsa riservata ai docenti dell’Università di Al Akhawayn (Marocco) 1

**Posti senza borsa di studio** 2

**POSTI CON BORSA A TEMATICA GENERALE:** 4

Dei 10 posti complessivi n. 6 saranno assegnati sulla base della graduatoria a tematica generale (n. 3 posti con borsa di studio su fondi di Ateneo, n. 1 posto con borsa finanziato da INFN e n. 2 posti senza borsa).

**POSTI CON BORSA A TEMATICA VINCOLATA:** 3

Le borse a tematica vincolata sono le seguenti:
1) **n. 2 posti con borsa finanziati dall’Istituto Italiano di Tecnologia (IIT)** finalizzata allo svolgimento di una delle seguenti linee di ricerca:
   a) Sviluppo dei metodi della teoria del funzionale densità senza gli orbitali;
   b) Modeling di sistemi fotonici/plasmonici applicati al deep-learning e compressimaging;
   c) Sviluppo di funzionali di scambio e correlazione basati sul metodo della connessione adiabatica;
   d) Sviluppo e applicazione di modelli microscopici per la plasmonica e l'ottica lineare; 
   e) Modeling ab-initio di isolanti topologici a due dimensioni; 
   f) Modeling ab-initio delle proprietà ottiche di nanoparticelleplasmoniche a semiconduttore.

2) **n. 1 posto con borsa finanziata da CNR Nanotec – Istituto di Nanotecnologie** finalizzata allo svolgimento della seguente linea di ricerca: 
"Modelli in vitro per studi di nanomedicina".

**POSTI RISERVATI: 1**

**n. 1 Posizione è riservata ai docenti dell'Università di Al Akhawayn (Marocco)**

Altri posti con borsa potranno essere assegnati in caso di valutazione positiva delle proposte sottmesse in risposta all'eventuale bando ministeriale sui “Dottorati Innovativi” e al bando della Regione Puglia – Avviso Pubblico n. 1 POC/2021 “Dottorati di ricerca in Puglia XXXVII ciclo”.

Le modalità di partecipazione per le borse a tematica vincolata e di assegnazione delle medesime sono indicate nel bando di concorso.

**Total number of positions: 10**

**Funded Positions: 8**

Of which:

- Positions with Fellowships funded by Univ. of Salento: 3
- Position with Fellowship funded by INFN: 1
- Position with Fellowship funded by Italian Institute of Technology (IIT): 2
- Position with Fellowship funded by CNR NANOTEC: 1
- Position funded by University of Al Akhawayn (Morocco) reserved to their own lecturers/professors: 1
Positions with no Fellowships: 2

Among the 10 positions overall 6 will be assigned on the basis of the general thematic ranking (3 with fellowship on University funds, 1 with fellowship financed by INFN and 2 without fellowship)

Positions with fellowships on specific topics (as listed below): 3

1) n. 2 positions with fellowship funded by the Italian Institute of Technology (IIT) covering one of the following research lines:
   a) Development of orbital-free density functional theory methods;
   b) Modeling of photonic/plasmonic systems for deep-learning and compress imaging applications;
   c) Development of exchange-correlation functionals based on the adiabatic connection method;
   d) Development and application of microscopic models for plasmonics and nonlinear optics;
   e) Ab-initio modeling of two-dimensional topological insulators;
   f) Ab-initio modeling of the optical properties of plasmonics semiconductor nanoparticles

2) n. 1 position with fellowship funded by CNR Nanotec on the following research line:
   "In vitro models for nanomedicine studies"

Position funded by University of Al Akhawayn (Morocco) reserved to their own personnel 1

Taking into account the announced MIUR call for “Innovative doctorates with industrial characterization”, the funded positions could be increased, depending on the evaluation and funding of the submitted proposals or to “Apulia Region” call for PhD positions. (Avviso Pubblico n. 1 POC/2021 “Dottorati di ricerca in Puglia XXXVII ciclo”).

The rules for application to positions on specific research topics and the their assignment are indicated in the call.

**Tematiche di ricerca**

Le tematiche di ricerca trattate nell’ambito del corso di Dottorato in Fisica e Nanoscienze riguardano gli aspetti fondamentali dei vari settori della fisica di base: Astrofisica, Fisica Applicata, Fisica della Materia, Fisica Teorica, Nucleare e Subnucleare e Fisica delle Astroparticelle. L’offerta formativa si
avvale inoltre di attività di ricerca legate alla Fisica Applicata e allo sviluppo tecnologico. Si progettano ad esempio nuovi rivelatori per la Fisica Nucleare o dispositivi optoelettronici avanzati e applicazioni di tecnologie laser alla Fisica della Materia e dell'atmosfera. Un obiettivo specifico del corso è infine quello di garantire un approccio interdisciplinare ad ampio spettro sulle Nanoscienze, sulle interazioni molecolari a nanoscala, sulla nanoelettronica, sui materiali ibridi nanostrutturati e sulle loro proprietà fisico-chimiche. Temi specifici saranno articolati in sinergia con l'INFN, il CNR e con il piano strategico della Fondazione IIT.

L'attività di ricerca sperimentale dei dottorandi si potrà avvalere del supporto di laboratori ben attrezzati in grado di operare in tutti i settori di ricerca menzionati. L'attività teorica potrà usufruire di laboratori di calcolo avanzato e parallelo.

Il corso di Dottorato beneficia dell'interazione con i diversi istituti di ricerca che collaborano con l'Università quali l'INFN, il CNR, e l'IIT. Ciò amplia lo spettro delle possibili aree di interesse e garantisce agli studenti ulteriori e qualificate attività di formazione, studio e ricerca.

Sono, inoltre, state stipulate convenzioni dedicate agli scambi di dottorandi: si segnalano, in particolare, le convenzioni Erasmus+ con Wuppertal (Germania) e con Ioannina (Grecia).

La partecipazione dei vari gruppi di ricerca ad importanti reti di cooperazione internazionale tra Istituti ed Università straniere di varia provenienza (Stati Uniti, America del Sud, Europa, Cina ed altri) offre l’opportunità di lavorare presso strutture e laboratori leader nei rispettivi settori, come il CERN, e l’esperimento AUGER in Argentina.

Le n. 3 BORSE a TEMATICA VINCOLATA verteranno su:

1) n. 2 borse finanziatedall’Istituto Italiano di Tecnologia (IIT) finalizzata allo svolgimento di una delle seguenti linee di ricerca:

a) Sviluppo dei metodi della teoria del funzionale densità senza gli orbitali;

b) Modeling di sistemi fotonici/plasmonici applicati al deep-learning e compressiimaging;

c) Sviluppo di funzionali di scambio e correlazione basati sul metodo della connessione adiabatica;

d) Sviluppo e applicazione di modelli microscopici per la plasmonica e l’ottica non lineare;
Research topics

The research topics addressed in the framework of the PhD in Physics and Nanosciences deal with the bases of the various areas of fundamental physics: Astrophysics, Physics of Matter, Theoretical Physics, Nuclear and Subnuclear and Astroparticle Physics. The provision of training also makes use of research activities related to the Applied Physics and technological development. For example, designing new detectors for nuclear physics or advanced optoelectronic devices and applications of laser technology to the physics of matter and the atmosphere. A specific goal of the course is ultimately to ensure a comprehensive and interdisciplinary training in the field of Nanoscience, including specific topics like nanoscale molecular interactions, nanochemistry, and nanostructured hybrid materials.
materials and their physico-chemical properties. Specific themes will be articulated in synergy with the INFN, the CNR and with the strategic plan of the IIT Foundation.

The experimental research activity of PhD students relies on the support of well-equipped laboratories capable of operating in all areas of research mentioned above; the theoretical activity can take advantage of laboratories for advanced and parallel computing.

The PhD course benefits from its interaction with the research institutions that collaborate with the University, like INFN, CNR, and IIT. This broadens the spectrum of possible areas of interest and provides students with additional qualified training, study and research.

The participation of the various research groups of the Department in large international collaborations with the presence of foreign universities and institutes from different countries (United States, South America, Europe, China and others) offers the opportunity to work by using facilities and laboratories leaders in their respective sectors, such as CERN, Fermilab and the University of Harvard.

3 positions with fellowships on specific research topics

1) n. 2 fellowship funded by the Italian Institute of Technology (IIT) in one of the following research lines:

   a) Development of orbital-free density functional theory methods;
   b) Modeling of photonic/plasmonic systems for deep-learning and compress imaging applications;
   c) Development of exchange-correlation functionals based on the adiabatic connection method;
   d) Development and application of microscopic models for plasmonics and nonlinear optics;
   e) Ab-initio modeling of two-dimensional topological insulators;
   f) Ab-initio modeling of the optical properties of plasmonics semiconductor nanoparticles

2) n. 1 position with fellowship funded by CNR Nanotec on the following research line:

"In vitro models for nanomedicine studies"

This PhD project aims to develop and characterize integrated models of the liver and intestine based on induced pluripotent stem cells (iPS), in order to recapitulate in vitro the so-called
gut-liver axis (GLA). The PhD project involves research activities at the interface between biofabrication and high-content imaging. In particular, the application of biofabrication techniques (eg bioprinting and organ-on-a-chip) will allow for highly parallelized culturesystems in which the control of the microenvironment is guaranteed by the introduction of compositional gradients and mechanical stress. The interrogation of the in vitro models thus created will be largely entrusted to automated fluorescence optical microscopy techniques coupled with the extraction of quantitative data (high-content analysis, HCA) for the phenotypic screening of molecules with pharmacological action, both in free and associated with nanocarrier. The candidate will deepen the analysis of HCA datasets by developing algorithms for feature extraction and for classification using machine learning techniques (both unsupervised and supervised), in order to quantify the effectiveness of new potential pharmacological approaches for diseases affecting the GLA.

Requisiti di partecipazione
Requirements for participation

- Altro titolo dichiarato equivalente o equipollente ai sensi della normativa vigente per la partecipazione ai pubblici concorsi.
- Titolo analogo conseguito presso Università straniere legalmente riconosciute.

Modalità di selezione

Valutazione titoli, progetto di ricerca e colloquio

Valutazione dei titoli (max 10/100):

La Commissione procederà ad effettuare la valutazione dei titoli in data successiva rispetto alla valutazione del progetto di ricerca limitatamente a quei candidati che siano stati ammessi al colloquio attribuendo a:

Curriculum: max 1 punti
Percorso di formazione universitaria: max 4 punti
Esperienze professionali: max 2 punti
Esperienze di ricerca: max 3 punti

Progetto di ricerca (max 45/100)
Il progetto di ricerca dovrà essere, al massimo, di quattro pagine. Esso dovrà includere le seguenti parti:
- Titolo e tematica della ricerca;
- Abstract;
- Stato dell’arte;
- Metodologie scientifiche per il conseguimento dei risultati;
- Obiettivi e finalità della ricerca;
- (Abstract e Stato dell’Arte non potranno superare la lunghezza di una pagina)

Il progetto potrà essere redatto in italiano o in inglese.

Al progetto potrà essere allegata almeno una lettera di presentazione del candidato, oggetto di valutazione della Commissione in sede di colloquio, redatta dal relatore di tesi o dal responsabile del gruppo di ricerca ove il candidato ha acquisito le esperienze riportate nel curriculum.

Al colloquio sono ammessi i candidati che abbiano riportato nella valutazione del progetto di ricerca un punteggio minimo di 30.

Il colloquio sarà svolto per tutti i candidati ammessi in modalità telematica mediante la piattaforma Microsoft TEAMS(max 45/100).

Nell’ipotesi di ammissione al colloquio il candidato riceverà un invito dalla Commissione a far parte del gruppo creato tramite la piattaforma indicata. Anche a tal fine, il candidato è tenuto obbligatoriamente a fornire già nel c.v. allegato alla domanda di partecipazione al concurso un valido account mail, associato a un’utenza Microsoft valida, a installare su un proprio dispositivo il software della piattaforma indicata e a dotarsi di una webcam che ne consenta l’identificazione prima della prova orale.

Il colloquio sarà volto a verificare la preparazione del candidato e l’attitudine alla ricerca su tematiche oggetto del dottorato.

I curricula ed i colloqui potranno essere presentati/svolti in italiano o inglese.

Durante il colloquio sarà verificata la conoscenza della lingua inglese per i candidati. Per i candidati stranieri sarà verificata anche la conoscenza della lingua italiana.

La verifica della lingua inglese per tutti i candidati nonché della lingua italiana per i soli candidati stranieri prevede l’assegnazione di un punteggio pari a 2/100, da ricomprendersi nel punteggio massimo conseguibile al colloquio.
Il colloquio si considera utilmente superato ove il candidato riporti un punteggio pari ad almeno 30/100.

MAXIMUM SCORES FOR EACH TEST:

**Evaluation of CV** (maximum score 10/100):

Evaluation of scientific CV (the examination board will proceed to make the assessment of the scientific CV at a later date than the completion of the project evaluation, just for those candidates who have been admitted to the interview) according to the following criteria:

- **Curriculum**: max 1 point
- **Training**: max 4 points
- **Professional experience**: max 2 points
- **Research experience**: max 3 points

For an overall total of 10 points maximum.

**Research Project: max. score 45 points**

Research project with a maximum length of four pages. The project will include the following parts:
- Title and topic of research.
- Abstract
- State of the art
- Scientific methodologies for the achievement of results
- Objective and Scope of Research
- (State of the art and abstract cannot exceed the length of one page)

The project should be written in Italian or English.

**The candidate could provide at least one reference letter, which has to be sent with the submitted research project.** The letter has to be signed by the Master Degree thesis supervisor or by the director of a research center where the candidate worked before and will be evaluated during the interview.

To be admitted to the interview the candidates must have in the evaluation of a research project score equal to or greater than 30 points.

The interviews will be held in teleconference mode by means of Microsoft TEAMS platform: maximum score 45 points.
After being shortlisted, the selected candidates will receive an invitation to a “team” created for the platform. It is thus required for admission that the candidates indicate within the CV an e-mail address associated to a valid Microsoft account, install the software necessary for the call. A webcam is required for the identification procedure, prior to the oral exam.

Interview will be devoted to test the candidate background and his/her attitude to research for what concerns the topics of the Ph.D. Course.

The curricula and the interviews can be written/done in Italian or English.

During the interview English language proficiency will be tested for candidates. For foreign applicants the basic knowledge of the Italian language will be verified.

The test of English for all candidates as well as the Italian language for foreign applicants will award a maximum score of 2/100 points within the maximum score achievable for the interview.

To pass the interview the candidates will achieve score equal to or greater than 30 points.

<table>
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<tr>
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<tbody>
<tr>
<td>Shortlist of candidates for the oral exam</td>
<td>The results of the evaluation of the research project will be published on September 16, 2021 on the website of the Department of Mathematics and Physics “Ennio De Giorgi” website <a href="http://www.matfis.unisalento.it/dottorati">http://www.matfis.unisalento.it/dottorati</a> and on official documents of the Department of Mathematics and Physics “Ennio De Giorgi”.</td>
</tr>
<tr>
<td>Data di svolgimento del colloquio</td>
<td>Il colloquio si terrà nei giorni 21 e 22 Settembre 2021 con inizio alle ore 10:30.</td>
</tr>
<tr>
<td>Selection procedure timeline</td>
<td>The interview will be held on 21 and 22 of September 2021, 10:30 am.</td>
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</table>
### Modalità di svolgimento del colloquio

Il colloquio sarà svolto a distanza per tutti i candidati ammessi tramite la piattaforma MICROSOFT TEAMS. I componenti della Commissione potranno, invece, riunirsi in presenza, ove la situazione epidemiologica lo consenta, presso il Dip.to di Matematica e Fisica “Ennio De Giorgi” – via per Arnesano, Lecce. Nell’ipotesi di ammissione al colloquio il candidato riceverà alla mail indicata nella domanda un invito dalla Commissione a far parte del gruppo creato tramite la piattaforma MICROSOFT TEAMS.

A tal fine il candidato è tenuto obbligatoriamente a fornire in occasione della presentazione della domanda di partecipazione al concorso un valido account mail ed a dotarsi di una web cam che ne consenta l’identificazione.

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### Interview

The interview will be held in teleconference for all the admitted candidates by means of teleconference platform MICROSOFT TEAMS. The members of the evaluation Commission may, however, meet in the presence, whenever the epidemiological situation permits, at the Department of Mathematics and Physics "Ennio De Giorgi" - via per Arnesano, Lecce. In the event of admission to the interview/oral exam, the candidate will receive an invitation from the Commission to join the group created through the MICROSOFT TEAMS platform.

To this end, the candidate is obliged to provide already a valid email account and to have a web cam that allows identification.

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### Sito web in cui reperire le informazioni in ordine all’esito del progetto, alla valutazione dei titoli ed all’ammissione al colloquio

[Website of the Department for informations of the ranking of admitted candidates to the interview](https://www.matfis.unisalento.it/home_page)

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### Sito web di Ateneo in cui reperire il bando di

[Website of Department of Mathematics and Physics](https://www.matfis.unisalento.it/home_page)
<table>
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<tr>
<th><strong>ammissione al concorso, il decreto di nomina Commissione e le graduatorie definitive della selezione approvate con Decreto rettorale</strong></th>
<th><strong>University website</strong></th>
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<tbody>
<tr>
<td>University website: <a href="http://www.unisalento.it">www.unisalento.it</a> – sezione Bandi e concorsi – concorsi – Ricerca – Bandi per dottorati di ricerca</td>
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<tr>
<th><strong>Responsabile amministrativo del procedimento di selezione</strong></th>
<th><strong>Administrative person responsible for the selection procedures</strong></th>
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<tbody>
<tr>
<td>Anna Micolano - tel. 0832/299210</td>
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<td><a href="mailto:anna.micolano@unisalento.it">anna.micolano@unisalento.it</a></td>
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