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The integral version is available at the following link:

<https://www.unimi.it/it/ricerca/fare-ricerca-da-noi/assegni-di-ricerca/bandi-assegni-di-ricerca>

THE ENGLISH LANGUAGE TRANSLATION DOES NOT HAVE LEGAL VALUE IN ITSELF, AND THUS DOES NOT SUPERSEDE THE ITALIAN VERSION OF THE CALL ANNOUNCEMENT (BANDO).

PUBLIC COMPETITION FOR 20 MONTHS FOR 1 TYPE B FELLOWSHIP FOR COLLABORATION TO RESEARCH ACTIVITIES IN THE SCIENTIFIC AREA OF PHYSICAL SCIENCES.

#### ART. 1 - COMPETITION NOTICE

According to art. 3 of Regulations, a public competition notice by qualifications and examinations is announced for the assignment of 1 type b FELLOWSHIP for collaboration to research activities lasting 20 months that could be renewed for the scientific area of Physical Sciences restricted to doctorate graduates or graduates.

#### ART. 2 - REQUIREMENTS

All graduates who have an appropriate scientific-professional curriculum to carry out research activities established by this competition notice can participate in this public selection.

PhD or equivalent qualification obtained abroad or, for the areas concerned, specialization degree completed by appropriate scientific production, unless otherwise specified, is preferential requirement for admission according to this competition notice.

Candidates must meet the following requirements:

- a. Absence of criminal record;
- b. Master's Degree in Any master degree or equivalent, from an Italian or foreign university.

Moreover it is required:

- c. Expertise in research area:

Experience in the theoretical study of the field of quantum technologies is required, with preference for open quantum systems, quantum computation and quantum thermodynamics, and with mainly mathematical-theoretical but also numerical-computational skills.

- d. Knowledge of language: English

Qualifications must be owned on the date of expiry established for the presentation of the application form.

Applicants in possession of degrees obtained abroad, who have not the declaration of equivalence, will have to enclose in the application form a translation into Italian or into English of the foreign degree, (Degree with marks earned in each examination and PHD degree), completed by a self-



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certification related to the correspondence to the original of the translation itself.

The degree earned abroad can be declared admissible, by the Judging Commission, only for purposes related to the selection.

The following qualifications will be evaluated for purposes related to the competition:

- a. PhD in subjects concerning the research or equivalent qualification earned abroad;
- b. Specialization degree in subjects concerning the research;
- c. Post-graduate degrees;
- d. Attendance of post-graduate courses at Italian or foreign Universities;
- e. Scientific-professional curriculum based on proven experience for research activity already carried out at public and private bodies with contracts, fellowships or appointments, both in Italy and abroad;
- f. Publications in scientific reviews.

For requisitions of admission and incompatibilities please see art. 4, 5 and 6 of Regulations at the link:

<https://www.unimi.it/it/ateneo/normative/regolamenti/regolamento-gli-assegni-di-ricerca>

#### ART. 3 - CANDIDATES LIST AND CURRICULA PUBLICATION

In application of obligations of transparency as from D.lgs. 14/03/2013 n. 33 this competition notice, the list of candidates with their curriculum vitae and the result of each selection will be published on the web site [http://www.unimi.it/ricerca/assegni\\_ricerca/69536.htm](http://www.unimi.it/ricerca/assegni_ricerca/69536.htm).

#### ART. 4 - APPLICATION

Application forms in plain paper must be written according to the form at the following link: <https://www.unimi.it/it/ricerca/fare-ricerca-da-noi/assegni-di-ricerca> and include name, surname, place and date of birth, address, telephone number, competition notice information. Application forms must be submitted online, at the following email address: [unimi@postecert.it](mailto:unimi@postecert.it), within January 19, 2024 at 11.59 pm (Italian time). The application form and any other enclosures requiring the candidate's signature. The message should state in the object field:

**"Domanda concorso Assegno di Ricerca Prof. Smirne Andrea, code ID 6212"**

Application forms not signed or incomplete or sent after the deadline established will not be admitted.

The application form must enclose:

- a. Degree with final mark;
- b. Phd degree / specialization degree;

- c. Scientific qualifications, diplomas, scholarships, attendance of post-graduate courses,
- d. Publications
- e. Curriculum of scientific activities.

Documents above mentioned can be presented as follows:

Academic and professional qualifications can be self-certificated (*Enclosure 1*). The other qualifications which require evaluation, publications included, can be presented in original copy or in photocopies by self-declaration in substitution of attested affidavit according to DPR 28/12/2000 n. 445 (*Enclosure 2*).

Candidates who have a degree only must show necessary documents to demonstrate a scientific-professional curriculum and appropriate research experience to carry out research activity as from this competition notice, otherwise they will be excluded from the competition.

#### ART. 5 - CURRICULUM PRESENTATION

Candidates, by the same time of presentation of the application form, must scan and send to the e-mail address [curriculum.assegni@unimi.it](mailto:curriculum.assegni@unimi.it) a copy of the curriculum vitae in pdf with the ID code with date and signature according to the form at the following link: <https://www.unimi.it/it/ricerca/fare-ricerca-da-noi/assegni-di-ricerca>

#### ART. 6 - RESEARCH ACTIVITIES

The Fellowship implies carrying out the activities briefly mentioned below at Dipartimento di Fisica Aldo Pontremoli dell'Università degli Studi di Milano and under the supervision of Prof. Smirne Andrea within the research programme "*Quantification and impact of memory effects in quantum computation and quantum thermodynamics- - CUP: G53D23001020006*", of the activities mentioned below:

1. Formulation of a microscopic characterization and a description via non-Markovian master equations of a structured open quantum system;
2. Application of non-Markovian models to quantum reservoir computing protocols, to identify the most favorable working regimes and the role of the system-environment correlations;
3. Development of protocols for the evaluation of memory-effect quantifiers, based on the trace distance as well as on entropic quantities;
4. Investigation of the link of information fluxes with energy exchanges and entropy production in multipartite quantum systems

#### ART. 7 - INCOMPATIBILITIES

For requisitions of admission and incompatibilities please see art. 6 and 8 of Regulations at the link:

<https://www.unimi.it/it/ateneo/normative/regolamenti/regolamento-gli-assegni-di-ricerca>

#### **ART. 8 - FELLOWSHIP AND INSURANCE**

The Fellowship's yearly gross amount is of Euro 27000,00. The amount is tax free according to art. 4 Legge 13 August 1984 n. 476 and subject, for what concerns welfare regulations, to regulations as from art. 2 paragraphs 26 and following Legge 8 August 1995 n. 335.

University will provide, for the period of the contract of collaboration to research, private insurance cover, with a public liability insurance and industrial accident insurance in favour of the fellow and within carrying out of research activities. The amount of the premium for insurance against industrial accidents is subtracted each year from the remuneration for the fellow.

#### **ART. 9 - PAYMENT AND SUPERVISION**

The amount is paid in postponed monthly instalments. The Fellows' duties, established by the individual contract, are performed under the supervision of the Professor coordinator who will verify the activity carried out according to art. 8 paragraph 5 of Regulations.

#### **ART. 10 - SELECTION PROCESS**

Application forms will be examined by a judging Commission, specifically appointed by the Rector (for the composition of the Commission see Regulations, art. 3 paragraph 2). The Commission, within twenty days since the deadline for presenting applications, with justified report, will form a ranking on the basis of a selection of academic and scientific qualifications presented and of an interview aiming at verifying the candidate's aptitude to research and knowledge of the language required. The commission establishes the standards of evaluation first and to evaluate the candidate it can use up to 100 points, 50 for qualifications to divide up in the following way:

- 1) PhD or Specialization in Medical Area up to **15** points
- 2) Scientific-professional Curriculum (post-graduate degrees, certified experience for research activity already carried out at public and private bodies with contracts, scholarships or appointments, both in Italy and abroad) up to **10** points
- 3) Other qualifications established by the competition notice up to **15** points
- 4) Scientific publications up to **10** points

and for the interview up to **50** points.

The Commission at the end of the interviews will publish the result of the total evaluation for each candidate and will form a ranking on the grounds of the points earned by each candidate, and appoints the winner or the winners when more fellowships must be awarded. In case of equality the youngest candidate will be preferred. The results of the selection are approved by Rector's decree and published on the University web site. Reports by Commission are public.

The interview is public and will take place on **February 2, 2024 at 10:00 AM** online.

Handicapped candidates, according to Legge 05/02/1992 n. 104, will do explicit request related



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to their handicap concerning the necessary aid in order to do the interview.

Candidates living abroad can have an interview with electronic procedures that ensure their identification, with the authorization by Examination Committee. Candidates should contact the Direzione Trattamenti Economici e Lavoro Autonomo - Ufficio Contratti di formazione e Ricerca - ([assegni.ricerca@unimi.it](mailto:assegni.ricerca@unimi.it)), at least one week before the date of the interview, to verify in advance the feasibility. The dates of the telematic interviews are shown art.10 of this call.

The winner will receive communication, by registered letter with return coupon attached, to the address written in the application form, of the assignment of the fellowship. Within 15 days since receiving the communication, unless differently stated, the person concerned must send to the Rector the declarations of acceptance required by the Administration, otherwise he/she will lose the right and within the following 10 days he/she will be called to stipulate a contract of collaboration to research activities.

Candidates who earned their degree abroad and are the winners must send to this Office, together with declarations of acceptance required by the Administration, the official translation with declaration of value of the foreign degree by qualified Italian diplomatic or consular representations in the country of origin, according to laws in force on the subject. Candidates will be excluded from the selection in case documents do not arrive within such deadline.

For non-EC citizens the fellowship will start after obtaining the entrance visa for scientific research and when research activity actually begins.

Personal states, facts and qualities self-certificated by the winner of this competition will be properly checked by Università degli Studi di Milano, also by sample, concerning their truth.

Declarations and certifications sent in one envelope by registered letter with return coupon attached (stamp and date of the post-office will be considered) will be considered sent in time within the deadline mentioned; on the envelope the competition notice concerned must be shown.

If the activities imply the use of laboratories, work equipment, chemical, physical and biological agents, inclusive of equipments provided with visual display units, the Fellow, according to art. 41 Dlgs n. 81/08, will undergo prior medical examination in order to verify counterindications with reference to activities which the subject should carry out and to evaluate his/her suitability.

#### **ART. 11 - WINNER NOT COMPLIANT WITH COMPETITION NOTICE AND REGULATIONS**

Winners of fellowships who do not comply what established by this competition notice and Regulations lose the right to the fellowship upon Rector's act by previous written communication.

#### **ART. 12 - PLACE AVAILABLE IN CASE OF LOSS OF RIGHT OR RENOUNCE BY WINNER**

In case of loss of the right or lack of stipulation within the deadline established or possible renounce by the winners, fellowships are made available to the candidates usefully placed in the ranking that, according to what established by Regulations, is valid up to ninety days from the

approval of acts.

#### **ART. 13 - PERSON IN CHARGE OF THIS COMPETITION**

According to Legge 7 August 1990, n. 241 Mrs Anna Tavano Ufficio Contratti di Formazione e Ricerca at Direzione Trattamenti Economici e Lavoro Autonomo - Via S. Antonio n. 12, Milano is in charge of the competition as from this competition notice.

For more information please contact the Ufficio Contratti di Formazione e Ricerca at Direzione Trattamenti Economici e Lavoro Autonomo - e-mail: [assegni.ricerca@unimi.it](mailto:assegni.ricerca@unimi.it).

For what is not established by this competition notice, please see laws in Regulations and laws in force on the subject.

According to DL 196/2003 and according to the General Data Protection Regulation (GDPR) EU 2016/679 and to Regulations on the protection of personal data of the University of Milan University will commit itself to respect all confidential information provided by the candidate: "all information provided will be handled only for aims connected to the selection and to the stipulation and management of relationship with University".

Full information is available at: <https://www.unimi.it/it/ateneo/normative/privacy> of the University website.

THE RECTOR  
Elio Franzini