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UNIVERSITÀ
DEGLI STUDI
FIRENZE

DOCTORAL PROGRAMME IN PHYSICS AND ASTRONOMY

Director Prof. Giovanni Modugno

XXXIX cycle – academic year 2023/2024

SCIENTIFIC AREA	
ADMINISTRATIVE OFFICE	Department of Physics and Astronomy
PARTNER INSTITUTIONS	Istituto Nazionale di Fisica Nucleare (INFN)
<p>POSITIONS AVAILABLE: 21 Positions with Scholarship: 19 Positions without Scholarship: 2* * standard ranking only</p>	
RANKING LIST FOR STANDARD POSITIONS SCHOLARSHIPS AVAILABLE: 8	<p>5 - University of Florence 3 - Istituto Nazionale di Fisica Nucleare (INFN)</p>
RANKING LISTS FOR POSITIONS WITH SPECIFIC RESEARCH TOPICS SCHOLARSHIPS AVAILABLE: 11	<p>1 - Istituto Nazionale di Astrofisica - Osservatorio Astrofisico di Arcetri (INAF) Thematic: “Observational and theoretical studies of: dynamics of galaxies; stellar populations; interstellar medium and star formation in the Galaxy and in the local Universe; advanced technologies for astronomy”.</p> <p>1 - Istituto Nazionale di Astrofisica - Osservatorio Astrofisico di Arcetri (INAF) Thematic: “Development of instrumentation and methods of scientific analysis for the study of the atmospheres of extrasolar planets with the ANDES-ELT spectrometer”.</p> <p>1 - Istituto Nazionale di Astrofisica - Osservatorio Astrofisico di Arcetri (INAF) Thematic: “Astrochemistry of pre-biotic molecules in high-mass star forming regions in preparation of the SKA observations”.</p> <p>1 - Azienda Ospedaliera Universitaria Meyer IRCCS Thematic: “Deep learning-based advanced magnetic resonance imaging analysis and their application in the diagnosis of cognitive impairment”.</p> <p>1 - Department of Physics and Astronomy Thematic: “Multidimensional quantum networks”. Funded by ERC project “Quantum Optical MULTIdimensional NETwork (QOMUNE) - G.A. n. 101077917</p>

1 - Department of Physics and Astronomy

Thematic: "Artificial intelligence and physical sciences for elaborating radiological images from dual energy computed tomography".

Funded by project "Artificial intelligence and physical sciences for elaborating radiological images" (MARCONICAREGGI22)

1 NRRP - European Union - NextGenerationEU

Thematic: "Numerical simulations of many-body systems and magnetic molecules".

Missione 4 "Istruzione e Ricerca" - Componente 2 "Dalla ricerca all'impresa" - "Rafforzamento delle strutture di ricerca per la creazione di "campioni nazionali di R&S" su alcune "Key Enabling Technologies" (Centri Nazionali) - Centro Nazionale di Ricerca HPC, Big data e Quantum Computing - CN1 - CUP: B83C22002830001

1 NRRP - European Union - NextGenerationEU

Thematic: "Development of high-performance computing codes for the simulation and analysis of data from gravitational wave interferometers".

Missione 4 "Istruzione e Ricerca" - Componente 2 "Dalla ricerca all'impresa" - "Rafforzamento delle strutture di ricerca per la creazione di "campioni nazionali di R&S" su alcune "Key Enabling Technologies" (Centri Nazionali) - Centro Nazionale di Ricerca HPC, Big data e Quantum Computing - CN1 - CUP: B83C22002830001

1 NRRP - European Union - NextGenerationEU

Thematic: "Light sheet fluorescence microscopy for the investigation of interacting quantum spin systems and energy transport processes".

Missione 4 "Istruzione e Ricerca" - Componente 2 "Dalla ricerca all'impresa" - Linea di investimento 1.2 "Finanziamento di progetti presentati da giovani ricercatori" Avviso: MUR D.M. n. 247/2022 (Linea 2) Progetto: MicroSpinEnergy - CUP: B83C22006380007

co-funded by Department of Physics and Astronomy

1 NRRP - European Union - NextGenerationEU

Thematic: "Atomic sensors with entangled quantum states"

Missione 4 "Istruzione e Ricerca" - Componente 2 "Dalla ricerca all'impresa" - "Partenariati estesi alle università, ai centri di ricerca, alle aziende per il finanziamento di progetti di ricerca di base" - PE4 - Partenariato Esteso in Scienze e tecnologie quantistiche - "National Quantum Science and Technology Institute" (NQSTI) - CUP: B83C22004940006

co-funded by Department of Physics and Astronomy

1 Istituto Nazionale di Astrofisica - Osservatorio Astrofisico di Arcetri (INAF)

NRRP - European Union - NextGenerationEU

Thematic: "PNRR-STILES: science with ELT, SKA and their pathfinders: 1. Searching for forming planets in protoplanetary disks; 2. Atmospheres of gas giant exoplanets"

Missione 4 "Istruzione e Ricerca" - Componente 2 "Dalla ricerca all'impresa" -

	Linea di investimento 3.1 “Fondo per la realizzazione di un sistema integrato di infrastrutture di ricerca e innovazione” – PNRR IR0000034 STILES - CUP C33C22000640006
STUDY/RESEARCH PERIODS ABROAD	1-3 months
DOCUMENTS REQUIRED FOR THE ADMISSION (under penalty of exclusion)	<ul style="list-style-type: none"> • Copy of the Identification Document • Self-declaration for qualifications obtained in Italy (laurea Triennale, Specialistica o Magistrale o ciclo unico) with a list of all exams taken and their marks, title of the thesis and graduation mark. (download the form here, make sure you fill in all the fields) • Qualifications obtained abroad (Bachelor’s and Master’s Degrees or combined cycle Degree) with a list of all exams taken and their marks, title of the thesis and graduation mark. <p><i>The same documentation except for the final mark must be submitted by those who will graduate within the 31/10/2023</i></p>
DOCUMENTS REQUIRED FOR THE EVALUATION	<p>MANDATORY</p> <ul style="list-style-type: none"> • Curriculum vitae et studiorum (maximum 2 pages, A4) • Research project (maximum 2 A4 pages, and maximum 1 additional A4 page for the bibliography) <p>OPTIONAL</p> <ul style="list-style-type: none"> • List of publications • Thesis abstract • Other qualification documents
RESEARCH PROJECT	<p>The project may be written in Italian or English and must describe a possible research activity to be carried out within the three-year PhD course. The project will be evaluated for its coherence with the doctoral themes of the PhD program and for its general and specific feasibility. It will also be used to ascertain the candidate's aptitude for research, even if it will not necessarily constitute her/his thesis project.</p> <p>The candidate may present the same project for the standard scholarship and for any scholarship with specific research topic and separate ranking lists he/she intend to apply to, or alternatively may present different projects for each scholarship, indicating clearly to which scholarship each project refers.</p>
INTERVIEW MODE	<p>Remotely (videocall)</p> <p>The interview is conducted in English language.</p>
FURTHER INFORMATION	<p>The interview will concern the research project, the CV and the publications. Questions may be asked concerning the master’s thesis work and basic physics knowledge related to the project and to the thesis.</p>

EVALUATION MARKS	parameter	minimum score	maximum score
	Research project	2/120	8/120
	Other titles and papers	–	2/120
	Curriculum vitae et studiorum, and list of taken exams with accompanying grades	–	38/120
	Applicants who obtain a mark of at least 32/120 according to the minimum score for each parameter will be admitted to the interview		
	Interview: discussion of the research project, thesis, the qualification documents presented and publications	48/120	72/120
Eligibility is achieved with a minimum score of 80/120			

Further information available at the following website page:
<https://www.fisica.unifi.it/vp-26-dottorato-in-fisica-e-astronomia.html>

EXAMINATION SCHEDULE		
	DATE	TIME
INTERVIEW	July 11 th 2023	9:30 a.m.
The list of candidates admitted to the interview and the final ranking will be published at the following web page: https://www.unifi.it/p12341.html		