

PhD Course: PHYSICS
in agreement with Istituto Nazionale di Fisica Nucleare – INFN

Department	FISICA E ASTRONOMIA "GALILEO GALILEI" - DFA		
Duration	3 years		
Number of positions	Scholarships funded by the University	n. 11	
	Scholarships funded by the partner Institution	n. 3	1 scholarship funded by Istituto Nazionale di Fisica Nucleare - INFN; 1 scholarship funded by Istituto Nazionale di Fisica Nucleare - INFN; 1 scholarship funded by Istituto Nazionale di Fisica Nucleare - INFN - Laboratori Nazionali di Legnaro - Topic: Research in Nuclear Physics within the activities of the National Laboratories of Legnaro;
	Scholarships funded by external public or private bodies/Departments	n. 16	1 scholarship funded by Dipartimento di Fisica e Astronomia "Galileo Galilei" - DFA cofinanziata al 50% da fondi della Fondazione Bruno Kessler - Topic: Applications of nuclear physics to the study of new materials, solutions, and devices for energy production; 1 scholarship funded by Dipartimento di Fisica e Astronomia "Galileo Galilei" - DFA su fondi Budget MUR Dipartimenti di Eccellenza 2023-2027 - Progetto "Frontiere Quantistiche" (FQ) - CUP C93C22009250005 - Topic: Experimental Development of Ion Trap Quantum Processor; 1 scholarship funded by Dipartimento di Fisica e Astronomia "Galileo Galilei" - DFA su fondi Budget MUR Dipartimenti di Eccellenza 2023-2027 - Progetto "Frontiere Quantistiche" (FQ) - CUP C93C22009250005 - Topic: Innovative materials for quantum technologies; 1 scholarship funded by Dipartimento di Fisica e Astronomia "Galileo Galilei" - DFA su fondi Budget MUR Dipartimenti di Eccellenza 2023-2027 - Progetto "Frontiere Quantistiche" (FQ) - CUP C93C22009250005 - Topic: Quantum Frontiers of Gravity; 1 scholarship funded by Dipartimento di Fisica e Astronomia "Galileo Galilei" - DFA su fondi Budget MUR Dipartimenti di Eccellenza 2023-2027 - Progetto "Frontiere Quantistiche" (FQ) - CUP C93C22009250005 - Topic: Theoretical models for quantum complex systems; 1 scholarship funded by Dipartimento di Fisica e Astronomia "Galileo Galilei" - DFA su fondi Fondo Italiano per la Scienza (Bando FIS 1), progetto ADAPTSYS n. FIS00000158 - CUP C53C23000660001 (50%) e su fondi PNRR - progetto CN1 "National Centre for HPC, Big Data

		and Quantum Computing” Spoke 10 – overheads (50%) CUP C93C22002800006 - Topic: Complex networks and quantum information techniques for early-warning detection of dysfunction in multiscale systems; 1 scholarship funded by Dipartimento di Fisica e Astronomia “Galileo Galilei” - DFA su fondi Fondo Italiano per la Scienza (Bando FIS 1), progetto ADAPTSYS n. FIS00000158 - CUP C53C23000660001 - Topic: Mitigation and recovery strategies to enhance the robustness of complex systems; 1 scholarship funded by Dipartimento di Fisica e Astronomia “Galileo Galilei” - DFA su fondi Fondo Italiano per la Scienza (Bando FIS 1), progetto ADAPTSYS n. FIS00000158 - CUP C53C23000660001 - Topic: Optimization techniques for resilient complex systems out of equilibrium; 1 scholarship funded by Dipartimento di Fisica e Astronomia “Galileo Galilei” - DFA su fondi Fondo Italiano per la Scienza Bando FIS 2 – Progetto "Axions and Dark Sectors: Tests on EaRth and from Astrophysics - ASTRA" n. FIS-2023-01577 – CUP C53C24001460001 - Topic: Axions and Dark Sectors: Tests on Earth and from Astrophysics; 1 scholarship funded by Dipartimento di Fisica e Astronomia “Galileo Galilei” - DFA su fondi Fondo Italiano per la Scienza Bando FIS 2 – Progetto "Axions and Dark Sectors: Tests on EaRth and from Astrophysics - ASTRA" n. FIS-2023-01577 – CUP C53C24001460001 - Topic: Axions and Dark Sectors: Tests on Earth and from Astrophysics; 1 scholarship funded by Dipartimento di Fisica e Astronomia “Galileo Galilei” - DFA su fondi Fondo Italiano per la Scienza Bando FIS 2 – Progetto "Axions and Dark Sectors: Tests on EaRth and from Astrophysics - ASTRA" n. FIS-2023-01577 – CUP C53C24001460001 - Topic: Axions and Dark Sectors: Tests on Earth and from Astrophysics; 1 scholarship funded by Dipartimento di Fisica e Astronomia “Galileo Galilei” - DFA su fondi Progetto di Ricerca Scientifica di Eccellenza n. 68079 “NewString” - Fondazione CARIPARO - CUP C93C24006870007 e sul progetto PRIN 2022 DM104.23_01 – CUP C53D23001450006 - Responsabile prof. Alessandro Sfondrini - Topic: Exact approaches to string and field theory; 1 scholarship funded by Dipartimento di Fisica e Astronomia “Galileo Galilei” - DFA su fondi del progetto ERC: GLAXES - X-ray-induced fluidization: a non-equilibrium pathway to reach glasses at the extremes of their stability range – CUP C93C20000120006 - Topic: Dynamical,
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			thermodynamic and structural properties of glasses irradiated with x-ray radiation; 1 scholarship funded by Dipartimento di Fisica e Astronomia "Galileo Galilei" - DFA su fondi del progetto HE "QEC4QEA - Quantum Excellence Centre for Quantum-Enhanced Applications" - Topic: Development of quantum algorithms for optimization problems; 1 scholarship funded by Fondazione Bruno Kessler - Topic: Development of superconducting quantum circuits for quantum sensing in dark matter searches; 1 scholarship funded by Fondazione Cassa di Risparmio di Padova e Rovigo, within the Arqus Alliance; supervisor UniPD prof. Giampaolo Mistura; the research project will be carried out in cotutelle with Universidad de Granada; required mobility: 18 months - Topic: Engineered surfaces for atmospheric water harvesting (AQUEDUCT);
	Positions without scholarship	n. 4	
	Total number of positions	n. 34	
Selection criteria	PRESELECTION ON THE BASIS OF EVALUATION OF QUALIFICATIONS AND ORAL EXAMINATION		
Oral examination via remote interview:	Applicants who have requested it in the application form will take the oral exam via remote interview using the ZOOM videoconference tool.		
Evaluation criteria	Qualifications: points max 40 Oral examination: points max 60		
Documents to be submitted	Thesis:	Points: max 5	(Applicants waiting to be awarded the entrance qualification: those waiting to be awarded the entrance qualification by 30th September 2025 will submit a summary of the master thesis project (max. 4 pages) signed by the applicant and the supervisor)
	Curriculum:	Points: max 20	CV prepared using the template available at this link: https://www.dfa.unipd.it/didattica/dottorati-di-ricerca/phd-physics/
	Other documents:	Points: max 15	At least one and no more than two reference letters; one motivational letter (2 pages maximum) which clarifies the research interests of the applicant, explaining in particular how those fit the research lines present in the Department.
Preselection: First meeting of the Evaluating Commission	29 MAY 2025 AT 09:00		
Publication of the results of the evaluation of the preselection	Within 11 JUNE 2025 the evaluating Commission will publish the results of the evaluation of the qualifications in the following website: https://www.dfa.unipd.it/didattica/dottorati-di-ricerca/phd-physics/ In order to be admitted to the examination, the candidate must get a score of at least 7/10 in the preselection.		

Publication of the timetable of remote interviews and instructions on how to use the ZOOM video conferencing	By 11 JUNE 2025 the commission will publish on the course website https://www.dfa.unipd.it/didattica/dottorati-di-ricerca/phd-physics/ the timetable of the remote interviews and the instructions on how to use the ZOOM video conferencing for those applicants who have chosen in the application form to take the oral examination via remote interview and who have passed the preselection on the basis of the qualifications with a pass-mark of at least 7/10.
Oral examination	16 JUNE 2025 AT 09:00 - The exam may continue: 17/06/2025, 18/06/2025, 19/06/2025, 20/06/2025 at 9:00 - Dipartimento di Fisica ed Astronomia, Via Marzolo, 8 - 35131 Padova
Language/s	Foreign language/s assessment at the oral examination: At the oral examination the commission will assess the knowledge of the following language/s: English Admission exam: The admission exam will be taken in: Italian or English, at the candidate's choice
Examination topics	Physics of fundamental interactions, Astrophysics and Astro-particle Physics, Cosmology, Nuclear Physics, Biophysics, Statistical Physics and Physics of Complex Systems, Physics of Matter and Applied Physics
PhD Course Website:	https://www.dfa.unipd.it/didattica/dottorati-di-ricerca/phd-physics/
Further information	Department: FISICA E ASTRONOMIA "GALILEO GALILEI" - DFA Address: Via Marzolo - N. 8, 35121 Padova (PD) Contact person: Mazzucco Cristina telephone: 0498277089 e-mail: didattica.dfa@unipd.it
How to apply	The application must be submitted only via the online procedure available at: https://pica.cineca.it/unipd/dottorati41 The documents must be attached in pdf format. The application and the attached documents are submitted automatically by closing the online procedure. So no hard copy of the application and of the documents must be sent to the office.
Deadlines	Publication of the ranking lists and enrollment from 2 July 2025 Beginning of PhD courses 1 November 2025