



Announcement n. 24141

### **DOE-INFN Summer Students Exchange Program 2022 Edition**

The US Department of Energy (DOE) and the Istituto Nazionale di Fisica Nucleare of Italy (INFN) announce the 2022 edition of the Summer Exchange Program dedicated to promote the exchange of students in science between the two countries.

INFN (<http://www.infn.it>) is one of the leading organization worldwide promoting basic scientific research and has tight connections with DOE activities in many areas of interest: Particle Physics, Astroparticle Physics, Nuclear Physics, Theoretical Physics and Detector Physics.

We call for applications of US students willing to join a INFN research team in Italy for a two-month period between June 1st and October 31st, 2022.

There are 11 positions available. Applicants can choose among 17 different INFN sites and 55 research projects.

Grants amount to 6000 € to cover travel and living expenses. They are subjected to a 30% reduction due to Italian income taxes.

**To qualify for the fellowship, it is mandatory, that each university student to undertake an insurance policy, at their own expense, covering medical, assistance, accident and illness expenses for the duration of the fellowship.**

Eligible candidates must be enrolled as students at a US university and they must have begun, at the time of application, at least the third year of a US University curriculum in physics, engineering or computing science, or planning to start the third year in 2022.

Applications, in electronic form, must be sent to INFN not later than 30<sup>th</sup> March, 2022 (11.59 pm CEST) through the website: <https://reclutamento.dsi.infn.it/>.

The application should include:

- a short CV following the template provided in the recruitment site, describing the applicant's academic and research experience. Only PDF files will be accepted.
- a list of the University courses and scores. Only PDF files will be accepted.
- the three preferred INFN sites and the research projects chosen among those listed in the Annex I.
- the motivation for applying to this program and a statement on research interests, specifying and justifying the selected projects.

Candidates will be excluded from participation in this call if they submit their application later than the indicated deadline.

Incomplete applications (lack of information or missing files) will not be considered.

Selection of participants will be carried out by the Selection Committee which will establish the evaluation criteria before having seen the applicant's documentation.

The selection of the candidates will be based on:

- the statement on research interests;
- the curriculum vitae and studiorum.

At the end of the selection process, the results of the selection will be published on the INFN website (Job Opportunities – Details of the announcement). Successful candidates will then receive an official communication from the INFN administration Offices.

Selected students are also requested to send their official University transcript by e-mail (digital scanned copy) before accepting the appointment with INFN.

Since September 2010, citizens of countries like US may enter Italy for a period of up to 90 days without a visa, to take part in the exchange program (please check here <http://vistoperitalia.esteri.it/home/en>).

Roma, 28<sup>th</sup> February 2022

ISTITUTO NAZIONALE DI FISICA NUCLEARE  
II PRESIDENTE  
(Prof. Antonio Zoccoli)<sup>1</sup>

RC/ADV

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<sup>1</sup> Documento informatico firmato digitalmente ai sensi della legge 241/90 art. 15 c 2, del testo unico D.P.R. 28 dicembre 2000, n. 445, del D.Lgs. 7 marzo 2005, n. 82, e norme collegate, il quale sostituisce il testo cartaceo e la firma autografa

## ANNEX 1

<b>INFN Sections and Laboratories</b>	<b>Research Projects</b>
1.Bari	<b>1.CMS1 Title:</b> Configuration of a HEP analysis workflow in a Jupyter environment with the aid of GooFit and PROOF-Lite tools
1.Bari	<b>2.CMS2 Title:</b> Test beam performance measurements of high-resolution micro-pattern gaseous detectors for the CMS experiment at HL-LHC and the Muon Collider experiment
1.Bari	<b>3.Fermi-LAT Title:</b> Gamma-ray analysis of transient sources at high energies
1.Bari	<b>4.LHCb Title:</b> Search for the flavour partners of the X(3872) meson
1.Bari	<b>5.MeV gamma-rays Title:</b> Characterization of a prototype detector for MeV gamma-rays
2.Cagliari	<b>6.DarkSide Title:</b> Simulation and data analysis in dark matter liquid argon detectors
2.Cagliari	<b>7.LHCb Title:</b> Studies of Heavy Nuclei collisions at LHCb
2.Cagliari	<b>8.CMS Title:</b> Higgs searches with the CMS experiment at CERN
3.Ferrara	<b>9.BESIII Title:</b> Realization of an interlock for the CGEM-IT detector
3.Ferrara	<b>10.BESIII/CGEM Title:</b> Study of the planar GEM detector readout by TIGER electronics
3.Ferrara	<b>11.RD_FCC1 Title:</b> Study of IDEA muon tracker and preshower detector based on micro-RWELL technology
3.Ferrara	<b>12.RD_FCC2 Title:</b> $B_s \rightarrow D_s K$ and $B_s \rightarrow J/\psi \phi$ analyses: benchmark for flavor studies at future electronpositron colliders
4.Firenze	<b>13.CMS1 Title:</b> Precision measurements of the Higgs boson production in the WW decay channel with the CMS experiment at LHC
4.Firenze	<b>14.CMS2 Title:</b> Characterization of Si-pixel based detectors for CMS HL-LHC Upgrade
4.Firenze	<b>15.SQMS / SFT (Superconducting Quantum Materials and Systems / Statistical Field Theory) Title:</b> Quantum algorithms and simulation methods for noisy intermediate-scale quantum processors
5.Genova	<b>16.ATLAS Title:</b> Pixel Detector for the ATLAS Upgrade at HL-LHC
5.Genova	<b>17.DUNE Title:</b> Tests of detector prototype for imaging of particle tracks in liquid Argon
5.Genova	<b>18.JLAB12 Title:</b> Light Dark Matter searches at Jefferson Lab
5.Genova	<b>19.JLAB12 Title:</b> AI-supported analysis of CLAS and CLAS12 data
5.Genova	<b>20.Phenomenology and ATLAS Title:</b> Jet physics at the LHC
6.Lecce	<b>21.ATLAS Title:</b> Building the future of the ATLAS experiment with the ITk pixels
7.LNF-Frascati National Laboratory	<b>22.PADME Title:</b> Commissioning and calibration of the PADME electron tagger detector
7.LNF-Frascati National Laboratory	<b>23.SHERPA (Slow High-efficiency Extraction from Ring Positron Accelerator) Title:</b> SHERPA bent crystal data analysis
7.LNF-Frascati National Laboratory	<b>24.CYGNO Title:</b> LIME, zero prototype for Dark Matter search and Neutrino astronomy based on Time Projection Chamber optical read out.
7.LNF-Frascati National Laboratory	<b>25.SIDDHARTA-2 Title:</b> Kaonic atoms measurements at the DAFNE collider with the SIDDHARTA-2 experiment
7.LNF-Frascati National Laboratory	<b>26.VIP Title:</b> Tests of Quantum Mechanics within the VIP experiment: Pauli Exclusion principle and gravity related collapse models
7.LNF-Frascati National Laboratory	<b>27.SEY1 Title:</b> Determination of Surface Charging/Discharging Conditions by Secondary Electron Yield Investigations
7.LNF-Frascati National Laboratory	<b>28.SEY2 Title:</b> Investigation of a-C at cryogenic temperature by SEY
7.LNF-Frascati National Laboratory	<b>29.LHCb Title:</b> Semileptonic decays of the $B_s$ meson, a tool for New Physics discovery
7.LNF-Frascati National Laboratory	<b>30.MITIQQ Title:</b> Innovative ultra-high resolution X-ray spectrometer for liquid sources
7.LNF-Frascati National Laboratory	<b>31.NANOSENSORS Title:</b> Nanosensors for biomedical applications
7.LNF-Frascati National Laboratory	<b>32.ELECTRON BEAM ACCELERATION Title:</b> Electron beam acceleration for advanced materials characterization
7.LNF-Frascati National Laboratory	<b>33.NANO-ELECTROMAGNETICS Title:</b> NanoElectromagnetics (microwave/RF/photronics)
8.LNL-Legnano National Laboratory	<b>34.AGATA Title:</b> New digital electronics for the AGATA array
8.LNL-Legnano National Laboratory	<b>35.LARAMED Title:</b> Experimental and Numerical Study of Innovative Compact Heat Sinks made by Metal Additive Manufacturing in the Turbulent Subcooled Boiling Regime

<b>INFN Sections and Laboratories</b>	<b>Research Projects</b>
8.LNL-Legnaro National Laboratory	<b>36.PANDORA Title:</b> The PANDORA Project: reproducing a stellar environment in a Laboratory
8.LNL-Legnaro National Laboratory	<b>37.SiPM Titolo:</b> Getting used with a Silicon Photomultiplier (SiPM) to prepare the teaching material for high school student
9. LNS-South National Laboratory	<b>38.KM3NET Title:</b> Construction of the km3net high energy neutrino telescope at 3500 m depth offshore CapoPassero
9. LNS-South National Laboratory	<b>39.DUNE Title:</b> Study of the performance of a Near Detector for the DUNE experiment at FNAL (USA)
9. LNS-South National Laboratory	<b>40.FRAISE Title:</b> TAGGING SYSTEM LNS FRAGMENT SEPARATOR
9. LNS-South National Laboratory	<b>41.CHIRONE Title:</b> EXPERIMENTAL ACTIVITY IN NEUTRON DETECTION SIMULATION
10.Milano	<b>42.LHCb Title:</b> Commissioning of the UT detector
11.Padova	<b>43.QUAX Dark Matter Search:</b> Axion Haloscope
11.Padova	<b>44.CTA Title:</b> Analysis of climate data obtained from a Raman LIDAR for astronomical observation with CTA
11.Padova	<b>45.ICARUS – SBN TITLE:</b> Studies on the neutrino events collected in the ICARUS T600 detector at FERMILAB
11.Padova	<b>46.GAMMA – RIKEN Title:</b> Exclusive cross section measurement of $^{52}\text{Fe}$ excited states populated via knockout reactions.
11.Padova	<b>47.LHCb2 Title:</b> Efficient $b$ - and $c$ -jet identification at the LHCb experiment using quantum machine learning
11.Padova	<b>48.LHCb1 Title:</b> Test of Lepton Flavour Universality with LHCb exploiting multivariate techniques
12.Pavia	<b>49.RF FCC and HiDRa Title:</b> Dual Readout Calorimeter R&D for FCC
13.Pisa	<b>50.SWEATERS Title:</b> Characterization measurements of a gas detector based on bulk-MicroMegas technology for low energy ionizing particles of SWEATERS Project
13.Pisa	<b>51.VIRGO – ET Title:</b> Laboratory measurements campaign by using high precision and low noise sensors for future Gravitational Waves detectors
14.Roma	<b>52. ANDROMEa</b>
15.Roma 2	<b>53.FastCaloGAN Title:</b> FastCaloGAN, a fast calorimeter simulation tool for ATLAS
16.Torino	<b>54.LUNA Title:</b> Characterization of an array of HPGe and scintillator detectors for low energy nuclear astrophysics at LUNA (Laboratory for Underground Nuclear Astrophysics)
17.Trieste	<b>55.ITS3 Title:</b> 65 nm CMOS test structures characterization