INTENSE: particle physics experiments at the high intensity frontier, from new physics to spin-offs. A cooperative Europe - United States - Japan effort.

Fact Sheet

Project Information

INTENSE

Grant agreement ID: 822185

Status

Ongoing project

Start date
1 January 2019

End date
31 December 2022

Funded under
H2020-EU.1.3.3.

Overall budget
€ 2 116 000

EU contribution
€ 2 116 000

Coordinated by
UNIVERSITA DI PISA

Italy

Objective

INTENSE promotes the collaboration among European, US and Japanese researchers involved in the most important particle physics research projects at the high intensity frontier. The observation of neutrino oscillations established a picture consistent with the mixing of three neutrino flavors with three mass eigenstates and small mass differences. Experimental anomalies point to the presence of sterile neutrino states participating in the mixing and not coupling to fermions. Lepton mixings and massive neutrinos offer a gateway to deviations from the Standard Model in the lepton sector including Charged Lepton Flavor Violation (CLFV). The FNAL Short-Baseline Neutrino (SBN) program based on three almost identical liquid argon Time Projection Chambers located along the Booster Neutrino Beam offers a compelling opportunity to resolve the anomalies and perform the most sensitive search for sterile neutrinos at the eV mass scale through appearance and disappearance.
disappearance oscillation searches. MicroBooNE, SBNΔ and Icarus will search for the oscillation signal by comparing the neutrino event spectra measured at different distances from the source. The FNAL SBN program is a major step towards the global effort of the neutrino physics community in realising the Deep Underground Neutrino Experiment (DUNE). Mu2e at the FNAL Muon Campus will improve the sensitivity on the search for the CLFV neutrinoless, coherent conversion of muons into electrons in the field of a nucleus by four orders of magnitude. INTENSE researchers have provided major contributions to the SBN and Mu2e projects and will take leading roles in the commissioning of the detectors, data taking and analysis. These endeavors foster the development of cutting-edge technologies with many spin-offs outside particle physics. INTENSE promotes multidisciplinary collaboration through “muography” which uses cosmic-ray muons to image the interior of large targets, including volcanoes, glaciers and archaeological sites.

Field of science

/humanities/history and archaeology/archaeology

Programme(s)

Topic(s)

Call for proposal

H2020-MSCA-RISE-2018

Funding Scheme

MSCA-RISE - Marie Skłodowska-Curie Research and Innovation Staff Exchange (RISE)

Coordinator

UNIVERSITA DI PISA

Address

Lungarno Pacinotti 43/44
56126 Pisa
Italy

Activity type

Higher or Secondary Education Establishments

EU contribution

€ 46 000

Website

Contact the organisation

Participants (15)
<table>
<thead>
<tr>
<th>Organisation Name</th>
<th>Country</th>
<th>EU Contribution</th>
<th>Address</th>
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<td>UNIVERSITE CATHOLIQUE DE LOUVAIN</td>
<td>Belgium</td>
<td>€ 36 800</td>
<td>Place De L Universite 1 1348 Louvain La Neuve</td>
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<td>ISTITUTO NAZIONALE DI GEOFISICA E VULCANOLOGIA</td>
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<td>€ 13 800</td>
<td>Via Di Vigna Murata 605 00143 Roma</td>
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<td>COSTRUZIONI APPARECCHIATURE ELETTRONICHE NUCLEARI CAEN SPA</td>
<td>Italy</td>
<td>€ 46 000</td>
<td>Via Vetraia 11 55049 Viareggio</td>
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<td>SMART ENGINEERING &amp; MANAGEMENT SOLUTIONS IKE</td>
<td>Greece</td>
<td>€ 27 600</td>
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<td>Switzerland</td>
<td>€ 101 200</td>
<td>Hochschulstrasse 6, 3012 Bern</td>
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<td>THE CHANCELLOR MASTERS AND SCHOLARSOF THE UNIVERSITY OF CAMBRIDGE</td>
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<td>346 Avenue Georges Clemenceau, 92000 Nanterre</td>
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<td>EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH</td>
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<td>WIGNER FIZIKAI KUTATOKOZPONT</td>
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**Partners (7)**

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United States
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<td>KOKURITSU DAIGAKU HOJIN NAGOYA DAIGAKU</td>
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<td>Furo Cho 1 Chikusa Ku 465 0043 Nagoya</td>
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<td>YALE UNIVERSITY</td>
<td>United States</td>
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<tr>
<td>Whitney Avenue 155 Room 214 06520 8337 New Haven</td>
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**Record number:** 219758

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