STRONG-2020

Annual Meeting

TA6: Transnational Access ECT*

Gert Aarts (former ECT* Director)

June 20-21, 2024

FONDAZIONE BRUNO KESSLER

ECT*
EUROPEAN CENTRE
FOR THEORETICAL STUDIES
IN NUCLEAR PHYSICS AND RELATED AREAS

Incoming Director: Bira van Kolck

- PhD: University of Texas, 1993 (with Weinberg)
- University of Arizona, from 2000
- Directeur de recherche CNRS, from 2012
- Mise à disposition: ECT*, from March 1 2024
- expected formal start: July 1 2024, FBK and CNRS still in negotiation

main research interests

effective field theories in nuclear, atomic and particle physics
emergence of nuclear structure and reaction properties from EFT of QCD
nuclear tests of fundamental symmetries

ECT* mission

- ✓ to be a Centre at the frontline of research in theoretical nuclear physics
- ✓ to promote active contacts between theory and experiments, and to related areas of research
- ✓ to further the training of young researchers

- established in 1993
- Institutional member of ESF-Expert Committee NuPECC (Nuclear Physics European Collaboration Committee)
- community-driven, bottom-up approach

ECT* Scientific Board

Almudena Arcones | TU Darmstadt (D)

David Kaplan | University of Washington (USA)

Denis Lacroix | CNRS/IN2P3 (F)

Marek Lewitowicz | NuPECC/GANIL (F)

Alexandre Obertelli | TU Darmstadt (D)

Assumpta Parreño Garcia | University of Barcelona (E)

Barbara Pasquini | University of Pavia (I)

Vittorio Somà | CEA Saclay (F)

Urs Wiedemann, Board Chair | CERN-TH (CH)

Ex officio: Albino Perego | University of Trento (I)

selected based on recommendations by the community: ECT* associates

term is three years

new chair:
Barbara Pasquini

new member:
Gilberto Colangelo

current call for two new members

2023 Annual Report

https://www.ectstar.eu/about-us/annual-report/

overview of all scientific and research activities, including list of ECT* publications

FONDAZIONE BRUNO KESSLER

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SYMPOSIUM IN OCCASION OF THE 30TH ANNIVERSARY OF ECT*

OCTOBER 4TH, 2023

ECT* | Aula Leonardi

ECT* | Villazzano, Trento,
Strada delle Tabarelle 286

Info: staff@ectstar.eu

PROGRAMME

1993-2023

9.00 - 10:00	**Welcome and introduction by invited guests**
10:00 - 10:45	**Computing the Heart of Matter** Sonia Bacca (University of Mainz)
10:45 - 11:15	Coffee break
11:15 - 12:00	Ab-initio Nuclear Physics in Trento Francesco Pederiva (University of Trento)
12:00- 14:00	Lunch at Villa Tambosi
14:00 - 14:45	**Color Glass Condensate in Collider Physics** Dionysios Triantafyllopoulos (ECT*)
14:45 - 15:30	**Cosmic Laboratories for Nuclear Physics** Almudena Arcones (TU Darmstadt)
15:30-16:00	Coffee break
16:00 - 16:45	**Cosmic Thirty Years of Education and Research on Nuclear Many-Body Physics at the ECT*; from traditional methods to quantum computing and machine learning** Morten Hjorth-Jensen (Michigan State University, USA and University of Oslo, Norway)
16:45 - 17:30	**Quantum Fractals** Ubirajara Van Kolck (IJCLab Orsay & University of Arizona)
18:00	Dinner at Villa Tambosi

The ECT* is part of the Fondazione Bruno Kessler. The Centre is funded by the Autonomous Province of Trento, funding agencies of EU Member and Associated states, and by INFN-TIFPA and has the support of the Department of Physics of the University of Trento

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1993-2023

7 OTTOBRE 2023
ORE 17.00
Aula Grande - Fondazione Bruno Kessler
Via Santa Croce 77 - Tento

LAURA FABBIETTI

IL LUNGO VIAGGIO DEGLI ANTINUCLEI

Gli antinuclei sono immagini speculari dei normali nuclei atomici, con la stessa massa ma carica opposta.
Non esistono fonti naturali di antinuclei sulla Terra, ma possono essere prodotti in laboratorio presso grandi acceleratori di particelle.
Gli antinuclei vengono cercati anche nello spazio, perché potrebbero essere la chiave di uno dei più grandi misteri della fisica: la materia oscura. La materia oscura è onnipresente e rappresenta cinque volte la massa di tutta la materia che possiamo osservare sotto forma di stelle nel cielo, pianeti e tutto il gas intermedio nelle galassie. Non è però possibile vedere o toccare la materia oscura perché non interagisce con la luce o con le forze elettriche.
Gli antinuclei offrono un nuovo modo di guardare nello spazio per cercare la materia oscura in quanto essa può interagire per creare antinuclei altrimenti quasi assenti.
Come possiamo trovare queste particelle nello spazio?
Quali proprietà dobbiamo conoscere?
E da dove possono provenire gli antinuclei nello spazio?
Durante l'evento approfondiremo queste domande e seguiremo il lungo viaggio degli antinuclei dal centro della nostra galassia alla Stazione Spaziale Internazionale nello spazio.

EVENTO PUBBLICO IN OCCASIONE DEL TRENTESIMO ANNIVERSARIO DI ECT*

INFORMAZIONI
staff@ectstar.eu

ECT* fa parte della Fondazione Bruno Kessler. Il Centro è finanziato dalla Provincia Autonoma di Trento, dalle agenzie di finanziamento degli Stati membri e associati dell'UE, dall'INFN-TIFPA e gode del supporto del Dipartimento di Fisica dell'Università di Trento.

La Prof.ssa LAURA FABBIETTI si è laureata in fisica all'università Statale di Milano ed è docente di fisica nucleare presso l'Università Tecnica di Monaco (TUM). Nel 2007 ha diretto un gruppo diricerca Helmholtz junior alla TUM in stretta collaborazione con la Gesellschaft für Schwerionenforschung (GSI) e, dal 2008, un gruppo di ricerca junior dell'Universe Cluster of Excellence. Nel 2011 ha vinto la cattedra presso la TUM, dove dirige la divisione di Density and Strange Hadronic Matter. Oggi è uno degli scienziati di punta del Cluster of Excellence ORIGINS e dell'Area Speciale di Ricerca 1258. La Prof.ssa Fabietti conduce i suoi esperimenti all'LHC del CERN nell'ambito della collaborazione ALICE.

5-year Review

Report of the ECT* Review Committee 2023

Sonia Bacca (Johannes Gutenberg University Mainz),
Barbara Erazmus (SUBATECH),
Richard Hall-Wilton (FBK),
Maria Paola Lombardo (INFN) (*chair*),
Piotr Magierski (Warsaw University of Technology),
Ulf-G. Meißner (University of Bonn & Forschungszentrum Jülich),
Sanjay Reddy (University of Washington)

Many thanks to the Review Committee!

Funding


fwo


UJF


HELSINKI
INSTITUTE OF
PHYSICS


cnrs
IN2P3


STRONG-2020
This project has received funding from the European Union's Horizon 2020
research and innovation programme under grant agreement No 824093

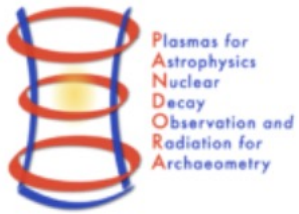

cea


UKRI
Science and
Technology
Facilities Council


wigner


MTA
atomki
DEBRECEN


EURO-LABS
EUROPEAN LABORATORIES
FOR ACCELERATOR
BASED SCIENCES


Plasmas for
Astrophysics
Nuclear
Decay
Observation and
Radiation for
Archaeometry


MIMOSA
4D Microscopy of bio materials


INFN
Istituto Nazionale di Fisica Nucleare


Nikhef


IFIN-HH


FONDAZIONE
CARITRO
CASSA DI RISPARMIO DI TRENTO E ROVERETO


Q@TN


FNSNF


FRIB
Theory
Alliance

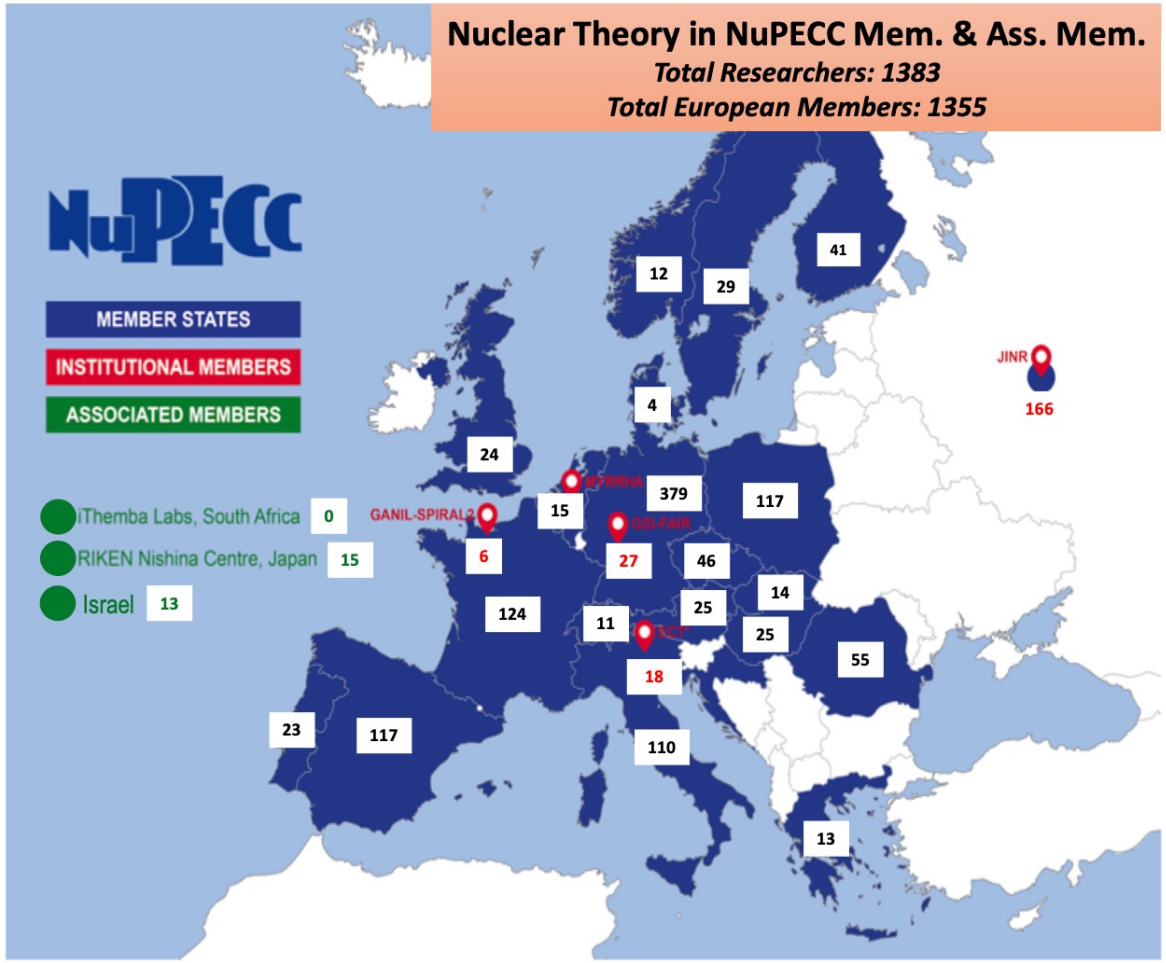

EMMI


GOETHE
UNIVERSITÄT
FRANKFURT AM MAIN


FONDAZIONE
BRUNO KESSLER

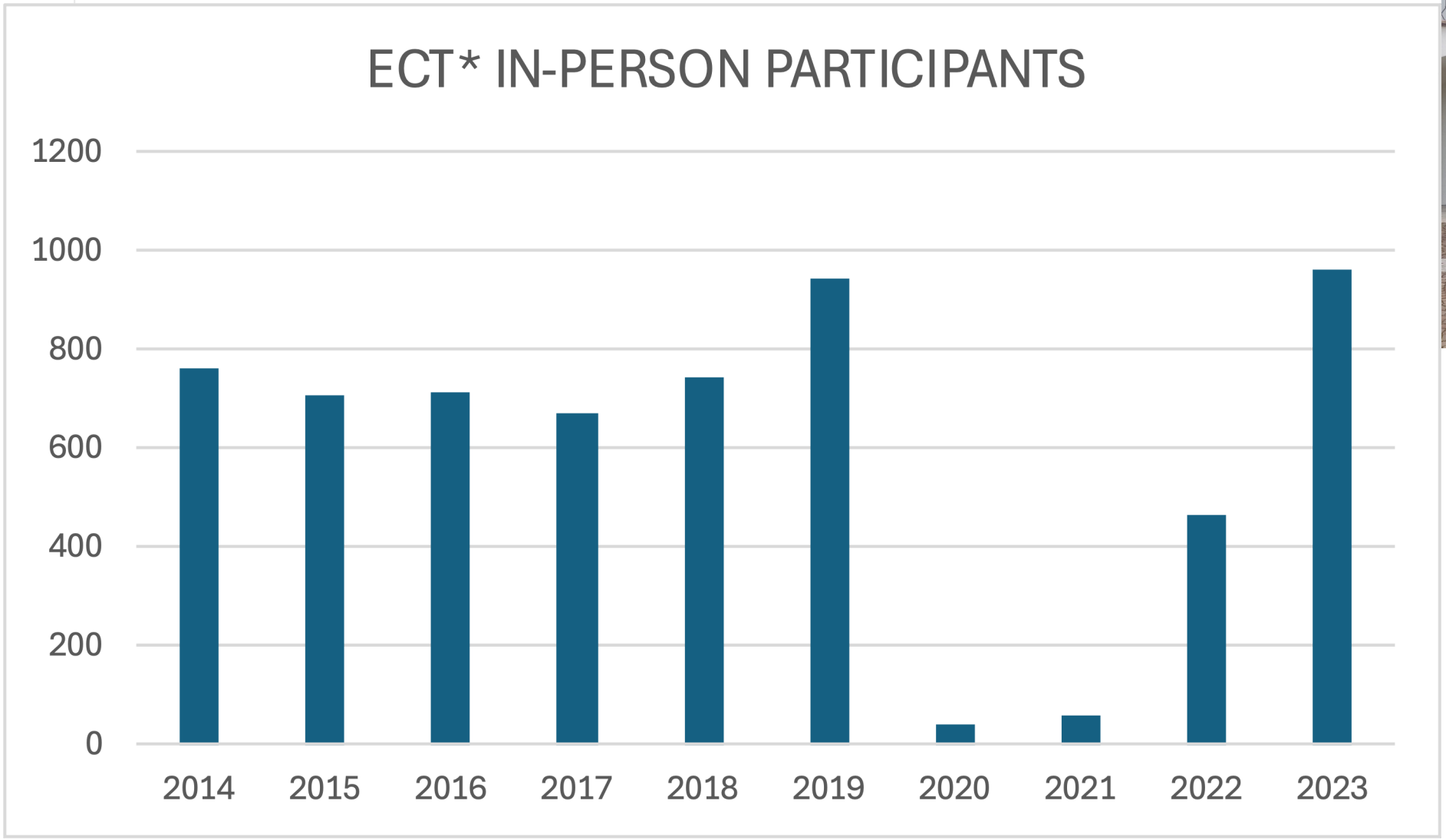
Recommendations for Nuclear Physics Infrastructures

- **Theory centres and groups should be strongly supported throughout Europe, in particular the European Centre for Theoretical Studies (ECT*, Trento, Italy), which is a unique European centre dedicated to theoretical nuclear physics in the broadest sense. A stronger pan-European support which will ensure that ECT* activities continue to play a strategic role in the development of nuclear physics in Europe is recommended.**

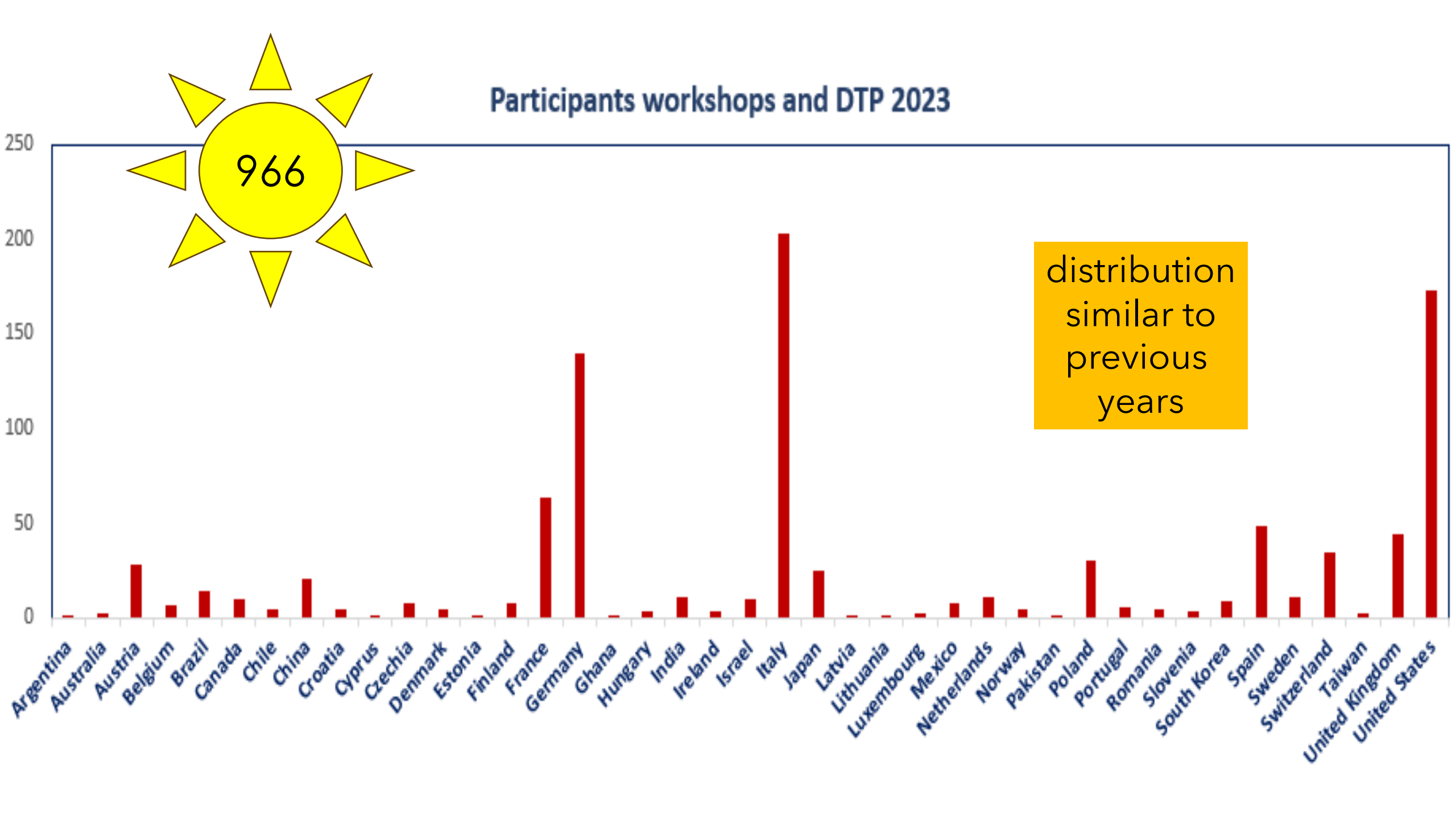


ECT*

Annual participation



SPICE May 2024


Participants workshops and DTP 2023
966
distribution similar to previous years
250
200
150
100
50
0
Argentina
Australia
Austria
Belgium
Brazil
Canada
Chile
China
Croatia
Cyprus
Czechia
Denmark
Estonia
Finland
France
Germany
Ghana
Hungary
India
Ireland
Israel
Italy
Japan
Latvia
Lithuania
Luxembourg
Mexico
Netherlands
Norway
Pakistan
Poland
Portugal
Romania
Slovenia
South Korea
Spain
Sweden
Switzerland
Taiwan
United Kingdom
United States

2024 Activities

23 workshops and collaboration meetings from February to December

Doctoral Training Program/TALENT School: Nuclear Theory for Astrophysics

7 workshops supported by STRONG-2020

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 824093

DTP 2024: Nuclear Theory for Astrophysics

15 July – 2 Aug 2024

organizers:

- Almudena Arcones (TU Darmstadt)
- Bruno Giacomazzo (U Milano-Bicocca)
- Jorge Piekarewicz (Florida State U)

26 participants selected from 51 applicants

supported by

EURO-LABS
EUROPEAN LABORATORIES FOR ACCELERATOR BASED SCIENCES

INFN
Istituto Nazionale di Fisica Nucleare

Theory Alliance
FACILITY FOR RARE ISOTOPE BEAMS

EMMI

CALL FOR 2025 PROJECT PROPOSALS

We welcome proposals for projects to take place at ECT* in 2025. Projects can be workshops or collaboration meetings. Other formats can be proposed and will be evaluated by the Board on a case-by-case basis. Decisions on approvals will be made at the Scientific Board meetings in May and October. Proposals submitted before the May meeting may be approved in May or in October, depending on the quality of the proposal and the number of applications received.

The topics of the planned activities should be in line with the main scientific interests of ECT*, i.e. Nuclear Physics in a broad sense (see Research). This involves low-energy Nuclear Physics and Nuclear Structure, Quantum Chromodynamics, Hadron Physics, Physics of Matter under Extreme Conditions, Ultra-Relativistic Heavy-Ion Collisions. Related areas of research include topics in Astrophysics, Particle Physics, Condensed Matter Physics and Many-Body Theory, Methods of Field Theory, Physics of Ultra-Cold Atomic Gases, Machine Learning and Quantum Information/ Technology.

The Scientific Board encourages Organizing Committees to reflect diversity and consist of a combination of Established and Early-Career researchers.

Deadline submission workshop proposals May Board meeting: May 15, 2024.

ECT* WORKSHOP PROPOSAL

Please, fill in this form in order to submit your Workshop proposal.

next call: September

https://www.ectstar.eu/activities/workshops/call-for-2025-project-proposals/

All areas of nuclear physics and more

- hard, hot & dense QCD
- hadronic physics
- nuclear structure and reactions
- nuclear astrophysics
- symmetries & fundamental interactions
- related areas, e.g.
  cold atoms, gravitational waves, quantum computing, machine learning, …

ECRs are particularly invited to co-organise workshops

VISITING PROGRAM

ECT* offers an exciting research environment, with a strong group of local researchers and lively workshops on a variety of topics. We also welcome visitors who can further enhance European and local research efforts. Visitors are selected on the basis of academic excellence and their expected contribution to ECT*.

Short- and medium-term visitors

ECT* intends to support local expenses for a few visitors. For visits of one or two weeks, hotel and meals can be supported. Longer stays might be accommodated albeit with reduced support.

If you are interested, please fill in this form.

Call “Visiting in Trentino 2024” of the Province of Trento

In 2024, the Province of Trento is offering significant support for visits of 6 to 9 months by scientists who will strengthen its research centers in various areas, including physics.

For more information, click here

Call for expressions of interest for Marie Sklodowska Curie Individual Fellowships 2024

For more information, click here

https://www.ectstar.eu/activities/visiting-program/

Meetings in 2024 supported by

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- α_S(2024): Workshop on precision measurements of the strong coupling constant (07/2)
- New jet quenching tools to explore equilibrium and non-equilibrium dynamics in heavy-ion collisions (12/2)
- The physics of strongly interacting matter: neutron stars, cold atomic gases and related systems (22/4)
- SPICE: Strange hadrons as a Precision tool for strongly InteraCting systEms (13/5)
- Beyond-Eikonal Methods in High-Energy Scattering (20/5)
- Saturation and Diffraction at the LHC and the EIC (10/6)
- Synergies between LHC and EIC for quarkonium physics (08/7)

Summary of STRONG-2020 activities overall

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 824093

- total number of workshops supported: **48**
  - in-person: 33
  - online: 11
  - hybrid: 4
- total number of participants supported: **504**
- total number of participants at STRONG-2020 workshops: **2294**
  - in-person: 1180 (25-30 participants/workshop)
  - online: 1114 (increased reach during pandemic)

ECT* STRONG-2020 budget (estimate)

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- note that the final workshop will start July 8
- budgets of recent workshops not yet closed

ECT* STRONG-2020 budget (estimate)

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	assigned	spent	difference
overall budget:	€402,500	€429,747	–€27,247
access costs:	€178,600	€219,114	–€40,514
direct costs:	€179,120	€168,649	+€10,471
indirect costs:	€ 44,780	€ 41,985	+€ 2,795


Questions/comments?