



Welcome to ECT*

Bira van Kolck
Director



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

ECT* mission

- ✓ to be a center at the frontline of research in nuclear theory
- ✓ to promote contact with experiment and related areas
- ✓ to further the training of young researchers

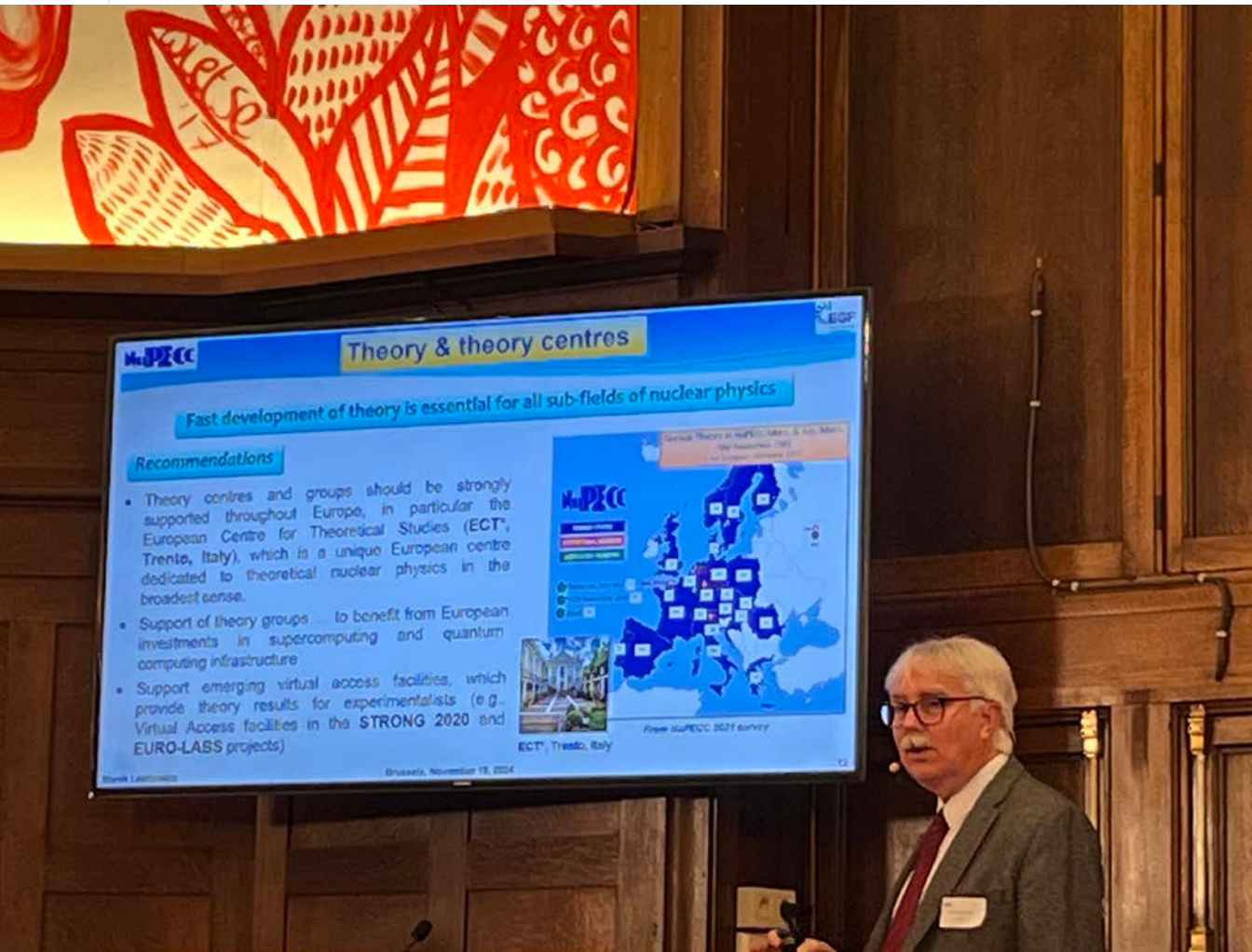
Unique venue
in European
nuclear
ecosystem

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



NuPECC LRP

Brussels, 19 Nov 2024



2025 PROGRAM OF ACTIVITIES

FEBRUARY 17-21	Key Reactions in Nuclear Astrophysics A. TUMINO (Università degli Studi di Enna "Kore" & INFN-LNS), C. BERTULANI (Texas A&M University-Commerce), R. DIEHL (Max Planck Institut für Experimentelle Physik), J. JORDI (Technical University of Catalonia), L. TRACHE (IFIN-HH)	21-25	Penetrating Probes of Hot High-mpB Matter: Theory Meets Experiment E. SCOMPARNI (INFN Torino), T. GALATYUK (TU Darmstadt), M. LOMBARDO (INFN Firenze), R. RAPP (Texas A&M University), G. USAI (Università di Cagliari)
MARCH 3-7	Scale Setting: Precision Lattice QCD for Particle and Nuclear Physics A. BAZAVOV (Michigan State University), S. COLLINS (University of Regensburg), R. SOMMER (DESY & Humboldt-Universität zu Berlin)	JUL/AUG 28-01	New Perspectives in the Charge Radii Determination for Light Nuclei F. HAGELSTEIN (JGU Mainz & PSI Villigen), L. GASTALDO (Kierchhoff-Institute for Physics), N. PAUL (Laboratoire Kastler Brossel), R. POHL (JGU Mainz)
24-28	Holographic Perspectives on Chiral Transport and Spin Dynamics M. KAMINSKI (University of Alabama), K. LANDSTEINER (IFT Madrid), D. KHARZEEV (Stony Brook University/BNL), U. GURDGY (Utrecht University)	25-29	Bridging Analytical and Numerical Methods for Quantum Field Theory A. CHERMAN (University of Minnesota), A. ATHENODOROU (The Cyprus Institute), T. JACOBSON (University of California, Los Angeles), M. CASELLE (University of Torino)
MAR/APR 31-04	Mechanical Properties of Hadrons: Structure, Dynamics, Visualization P. SCHWEITZER (University of Connecticut), S. DIEHL (University Gießen), K. JDO (University of Connecticut), C. LOBE (École Polytechnique), B. PASQUINI (Università di Pavia), C. WEISS (JLab)	SEPTEMBER 01-05	Hamiltonian Lattice Gauge Theories: Status, Novel Developments and Applications C. URBACH (University of Bonn), K. JANSEN (DESY Zeuthen / COTA), R. LEWIS (York University), G. MAGNIFICO (University of Bari), S. ROMITI (University of Bern), E. RICO ORTEGA (Ikerbasque)
APRIL 14-18	Lepton Flavour Change in Nuclei K. BENNAEUR (IP2I, IN2P3), S. DAVIDSON (LUPM, IN2P3)	08-12	Analytic Structure of QCD and Yang-Lee Edge Singularity V. SKOKOV (North Carolina State University), G. BAŞAR (University of North Carolina Chapel Hill), C. SCHMIDT (Universität Bielefeld)
MAY 05-09	Quantum Science Generation 2025 A. BALDIZZI (University of Trento), C. BENAVIDES-RIVEROS (INO-CNR Pitaevskii BEC Center), C. CAPECCI (Univ. Pitaevskii BEC Center), D. DE BERNARDIS (INO-CNR Pitaevskii BEC Center), C. JOHANSEN (INO-CNR Pitaevskii BEC Center), F. MANTEGAZZINI (FBK) et al.	22-26	Attractors and Thermalization in Nuclear Collisions and Cold Quantum Gases M. HELLER (Ghent University), J. BERGES (Heidelberg University), J. BREWER (University of Oxford), T. LAPP (University of Jyväskylä), M. SPALINSKI (National Centre for Nuclear Research)
12-16	Nonequilibrium Phenomena in Superfluid Systems: Atomic Nuclei, Liquid Helium, Ultracold Gases, and Neutron Stars P. MAGIERSKI (Warsaw University of Technology), B. HASKELL (Nicolaus Copernicus Astronomical Center), G. ROATI (University of Florence, LENS), G. WLAZLOWSKI (Warsaw University of Technology)	OCTOBER 06-09	Superconducting Devices for Quantum Optics and Quantum Simulations F. MANTEGAZZINI (FBK), I. CARUSOTTO (CNR-INO), N. ROCH (CNRS-Institut Neel), M. ESPOSITO (CNR-SPIN), N. CRESCINI (FBK), F. AHRENS (FBK)
19-23	The Complex Structure of Strong Interactions in Euclidean and Minkowski Space J. SKULLERUD (National University of Ireland), M. GOMEZ-ROCHA (Universidad de Granada), T. FREDERICO (Instituto Tecnológico de Aeronáutica), O. OLIVEIRA (Universidade de Coimbra), M. PELEAZ (Universidad de la República Uruguay), P. SILVA (Universidade de Coimbra), F. SIRINGO (Università di Catania)	13-24	Pan-American Few-Body Physics Boot Camp: Fostering Collaboration G. HUPIN (JLab), T. FREDERICO (Instituto Tecnológico de Aeronáutica), S. KÖNIG (North Carolina State University), A. LEFINE-SZILY (University of São Paulo)
JUNE 09-13	Universality in Strongly-Interacting Systems: from QCD to Atoms J. KRISCHER (SRM University AP), D. BLUME (The University of Oklahoma), R. BRICENO (UC Berkeley), L. CONTESSI (Université Paris-Saclay JLab, CNRS), M.P. VALDERRAMA (Beihang University)	NOVEMBER 03-07	Neutron-Capture Reactions for Astrophysical Processes A. SPYROU (Michigan State University), S. GORIELY (IAA-ULB), A. LARSEN (University of Oslo), S. LIDDICK (Michigan State University), D. MÜCHER (University of Cologne), M. WIEDEKING (Lawrence Berkeley National Lab)
JUNE/JULY 16-04	Doctoral Training Program/TALENT School: Quantum Computing for Nuclear Physics A. BAZAVOV (Michigan State University), Z. DAVOUDI (University of Maryland), M. HJORTH-JENSEN (University of Oslo and Michigan State University), R. LAROSE (Michigan State University), D. LEE (Michigan State University), A. ROGGERO (University of Trento)	17-21	ISNET-11: Information and Statistics in Nuclear Experiment and Theory A. EKSTROM (Chalmers University of Technology), D. PHILLIPS (Ohio University), A. LOVELL (Los Alamos National Laboratory)
07-09	Theory Service for the Low Energy Nuclear Physics Community: a Hands-on Workshop G. COLO (University of Milano and INFN), J. DUDEK (JdS and IFIN/IN2P3/CNRS, Strasbourg), M. RODRIGUEZ-GALLARDO (University of Sevilla)	DECEMBER 01-05	Multi-Canonical Methods and Lattice Field Theory G. KANWAR (University of Edinburgh), G. BONANNIO (IFT UAM/CSIC), D. HACKETT (Fermilab), B. LUCINI (Swansea University), A. NADA (University of Turin), J. URBAN (MIT)
14-18	Next Generation Ab Initio Nuclear Theory C. BARBIERI (Università di Milano), E. EPELBAUM (Ruhr Universität Bochum), R. FURNSTADL (Ohio State University), S. PASTORE (Washington University in St. Louis)		

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. The Director of ECT* is Prof. Ujjayjara van Kolck.
For information: staff@ectstar.eu | www.ectstar.eu

2025 activities

(selected by Scientific Board)

22 workshops (23 weeks)

from February to December

+

1 three-week

Doctoral Training Program/TALENT School

in June/July

Quantum Computing for Nuclear Physics

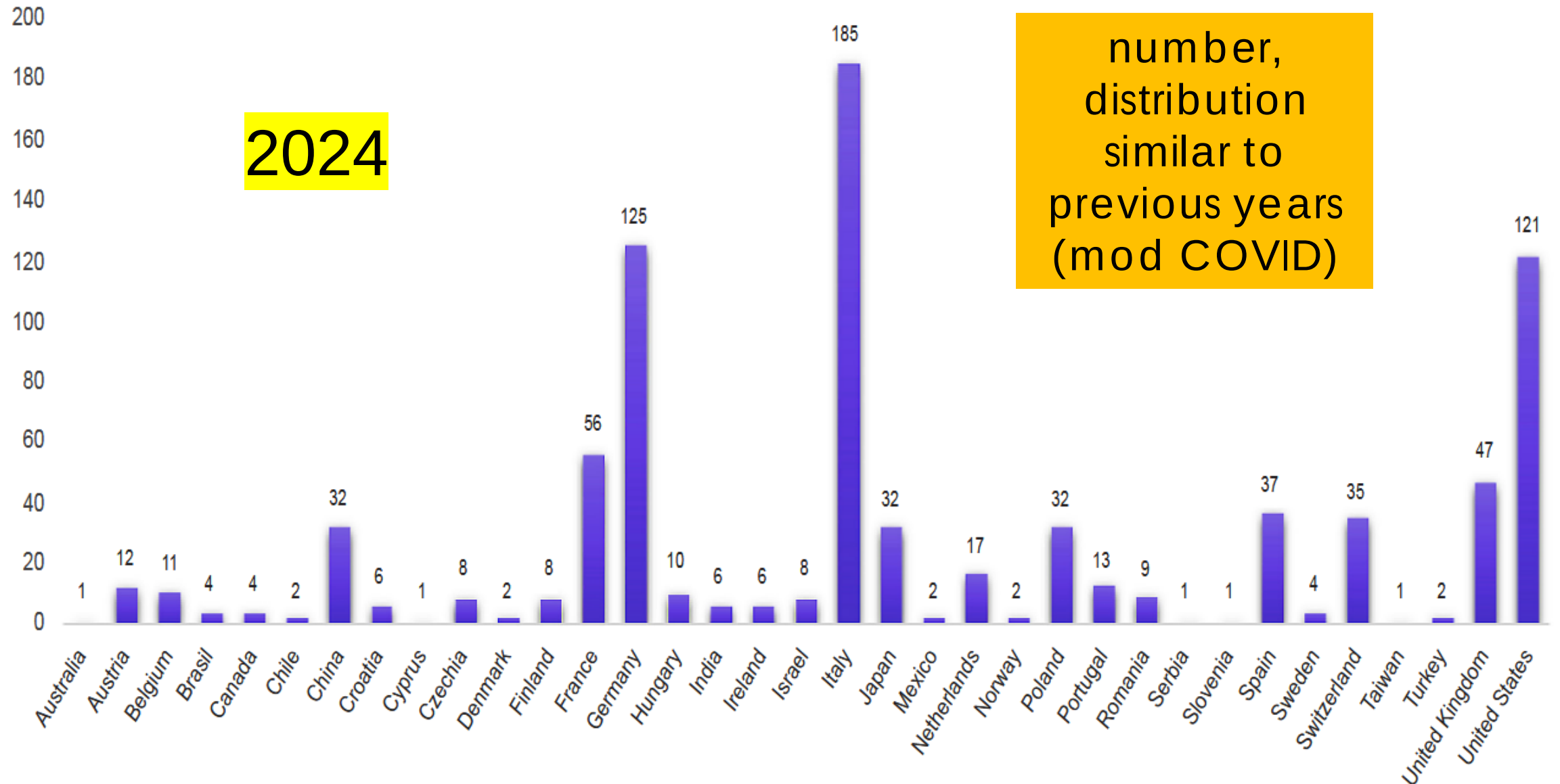
(A. Bazavov, Z. Davoudi, M. Hjorth-Jensen,
R. Larose, D. Lee, A. Roggero)

All areas of nuclear physics and more



- hard, hot & dense QCD:
chiral transport, probes, singularities, thermalization, Hamiltonian methods, multicanonical methods
- hadronic physics:
scale setting, mechanical properties, Green's Functions, analytical/numerical methods
- nuclear structure and reactions:
theory tools for experiment, *ab initio* theory, charge radii, few-body physics
- nuclear astrophysics:
key reactions, neutron-capture reactions
- symmetries & fundamental interactions:
lepton-flavor violation
- related areas:
quantum science, universality, superfluids, superconducting devices, uncertainty quantification

Participants workshops and DTP/TALENT School: 843



2027 CALL FOR ~~2026~~ PROJECT PROPOSALS

We welcome proposals for projects to take place at ECT* in 2026. Projects can be workshops or collaboration meetings, and schools (as part of ECT*'s Doctoral Training Program). 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 June and October 2025.

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. This involves nuclear structure and reaction dynamics, nuclear astrophysics, Quantum Chromodynamics and hadron physics, strongly interacting matter under extreme conditions, and symmetries and fundamental interactions. Topics can also be in related areas, such as particle physics, astroparticle physics and cosmology, methods of quantum field theory, condensed-matter physics, the physics of ultra-cold atomic gases, nuclear physics tools, machine learning, artificial intelligence, quantum computing, experimental techniques and methods.

The Scientific Board encourages the group of organizers to reflect diversity and combine established and early-career researchers.

Click [here](#) for a template of the form for proposals in Word, PDF and Latex format.

~~Please send the form no later than September 29, 2025~~ by email to: driessen@ectstar.eu with cc to direzione@ectstar.eu.

Next deadline ~ May 2026

<https://www.ectstar.eu/activities/workshops/call-for-2026-project-proposals>

INFO

Workshops

[Guidelines for Workshop Organizers](#)

[Participant Information](#)

[Introductory Talks](#)

[Past Workshops](#)

[Doctoral Training Program](#)

[TALENT School](#)

[Seminars and Colloquia](#)

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[Call for 2026 Project Proposals](#)

Scientific Board

- three-year terms
- membership suggested by ECT* associates
registration at
<https://www.ectstar.eu/about-us/ect-associates>

François Arleo | CNRS (F)

Sonia Bacca | University of Mainz (D)

Gilberto Colangelo | University of Bern (CH)

Gail McLaughlin | NC State University (USA)

Alexandre Obertelli | TU Darmstadt (D)

Assumpta Parreño Garcia | University of Barcelona (E)

Barbara Pasquini, Board Chair | University of Pavia (I)

Vittorio Somà | CEA Saclay (F)

Eberhard Widmann | NuPECC / Stefan Meyer Institute, Austrian Academy of Sciences (A)

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



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What we do

Lepton & baryon numbers,
time reversal, ...

Fundamental
symmetries

Quantum
Chromodynamics

Gluon saturation,
hadron structure, ...

Nuclear structure
and reactions

Effective field theories,
halo nuclei ...

Nuclear
astrophysics

Neutron stars, astrophysical plasmas, ...

Machine learning, transport Monte Carlo, quantum gases, ...

Computational
physics

Quantum
information

Simulations on qcomputers, ...

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](#).

Long-term visitors

No open call at the moment.

Call for expressions of interest for Marie Skłodowska Curie Individual Fellowships

No open call at the moment.

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[Doctoral Training Program](#)

[TALENT SCHOOL](#)

[Seminars and Colloquia](#)

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New Initiative



VIRTUAL PLATFORMS

ECT* offers virtual access to theoretical tools developed for the benefit of the nuclear physics and related communities.

LaVA – Lattice Virtual Academy

LaVA is a platform for an evolving collection of e-learning materials in the area of lattice field theory, a powerful computational method for nuclear and particle physics which is rapidly expanding to artificial intelligence and quantum computing. The platform is organized by topics (essentials, algorithms, etc.) and by level (beginners, advanced, experienced researcher) for easy access by users.

[Access to the LaVA platform](#)

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Welcome
Anna!

Staff Collaborator



PASQUALE POLIGAMIA

Staff Collaborator

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Funding

- unit of Fondazione Bruno Kessler (FBK)
- institutional support from national funding agencies and institutions
- EU/Horizon funding: ECT* recognized as a transnational access facility by NuPECC together with experimental labs
- individual projects, e.g. Marie Curie



Funding agencies and supporting institutions:



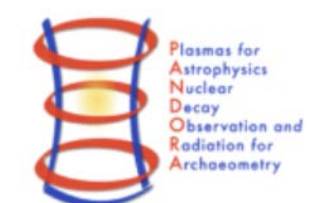
Additional contributors:



Projects



ACE – ADVANCED COATINGS FOR ENHANCED CORROSION RESISTANCE OF STEEL IN LIQUID METAL ENERGY SYSTEMS



Funding

European network



Local support



Special workshop support



Acknowledgements

In relevant publications, please include:

We thank ECT*
[and INFN (Istituto Nazionale di Fisica Nucleare) *if appropriate*]
for support at the Workshop [name of workshop]
during which this work has been initiated/developed/completed.

<https://www.ectstar.eu/acknowledgements>

A venue for WORKshops:
intense
scientific exchange
for the progress of
nuclear theory
and related areas



ECT* CODE OF CONDUCT

ECT* is committed to making its activities productive and enjoyable for everyone. All participants share the responsibility of fostering a supportive professional environment where open and frank discussion of ideas can take place, and where everyone is treated with courtesy and respect, regardless of their personal characteristics and background. We will not tolerate harassment of participants or others involved in ECT* in any form. For the entire duration of an ECT* activity and in other professional interactions with colleagues you agree to follow these guidelines:

Behave professionally in personal interactions as well as in any other form of communication including social media. Harassment and sexist, racist, or exclusionary comments or jokes are not appropriate. Harassment includes sustained disruption of talks or other events, inappropriate physical contact, sexual attention or innuendo, deliberate intimidation, stalking, and photography or recording of an individual without consent. It also includes, but is not limited to, offensive comments related to gender identity, sexual orientation, disability, physical appearance, body size, race, nationality, or the religion or non-religion of participants.

Be kind to others. Do not insult or put down attendees or other individuals associated with ECT*. Scientific discussion and criticism are vital and should be conducted in this spirit.

All communication should be appropriate for a professional audience including people of many different backgrounds. If participants wish to share photos of a speaker on social media, we strongly recommend that they first obtain the speaker's permission. Participants may share the contents of talks/slides via social media unless speakers have asked that specific details/slides should not be shared.

Should a participant be asked to stop any inappropriate behavior, they are expected to comply immediately. In serious cases, they may be asked to leave the activity at the sole discretion of the organizers and the ECT* Director. They may also be banned from participation in future activities.

Should a participant witness events of bullying, harassment or aggression, we recommend that they approach the affected person and show support. The witness may also suggest that the inappropriate behavior be reported and offer to facilitate that reporting if requested.

Participants can report any violation of these guidelines to the activity organizers, ECT* staff or the ECT* Director. Such reports will be treated confidentially.

Thank you for helping to make ECT* welcoming to all.

The ECT* Director

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Enjoy the
meeting!

