



European Centre for Theoretical Studies in Nuclear Physics and Related Areas

WELCOME
and
OVERVIEW





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Established in 1993 ...
... unique in **Europe**



- “Bottom-up” realization supported by large community
(ECT* **Associates** → International **Scientific Board**)



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Gert **Aarts** (chair)

Univ. Swansea

Omar **Benhar**

INFN Rome

Angela **Bracco** (NuPECC)

Univ. Milano

Nicole **d’Hose**

CEA, Saclay

Morten **Hjorth-Jensen**

Univ. Oslo & Michigan State Univ.

Ubirajara **van Kolck**

CNRS - INP Orsay

Sanjay **Reddy**

INT & Univ. Washington, Seattle

Dirk **Rischke**

Univ. Frankfurt

Marc **Vanderhaeghen**

Univ. Mainz



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- “Bottom-up” realization supported by large community (ECT* **Associates** → International **Scientific Board**)
- Large influx of international visitors (~ 700 per year)
- Strong local support by the Autonomous Province of Trento (PAT) through the Fondazione Bruno Kessler (**FBK**)
- Multinational Memorandum of Understanding funding agencies of European countries + **EU** Projects





The ECT* Mission

- 1. To be a center of frontline research in theoretical nuclear physics**
- 2. To promote active contacts between theory and experiments, and to related areas of research**
- 3. To further the training of young researchers**



Research @ ECT*



Senior Researchers

Daniele **Binosi** (SRA - Italy)

Gauge Field Theories, QCD

Dionysis **Triantafyllopoulos** (SRA - Greece)

QCD, Collider Physics

N.N. (Senior Postdoc 3years)

Quantum Simulators for relativistic systems

Junior Postdocs

Jesus **Casal Berbel** (PD - Spain)

Low-energy Nuclear Theory

Naoto **Tanji** (PD - Japan)

Parton Transport, Photons

Arianna **Carbone** (PD - Spain) Oct. 15

Nuclear Many-body theory, Neutron Stars

Arno **Tripolt** (PD - Germany)

Finite T Field Theory, Hot Matter

Maria **Gomez Rocha** (PD - Spain)

Hadron Physics, Quarkonia

N.N. (ECT*/TIFPA)

Nuclear Many-body Theory



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ECT* Scientific Events 2017



- 20 accepted workshops (out of 26 proposals)

2017 PROGRAMME OF ACTIVITIES

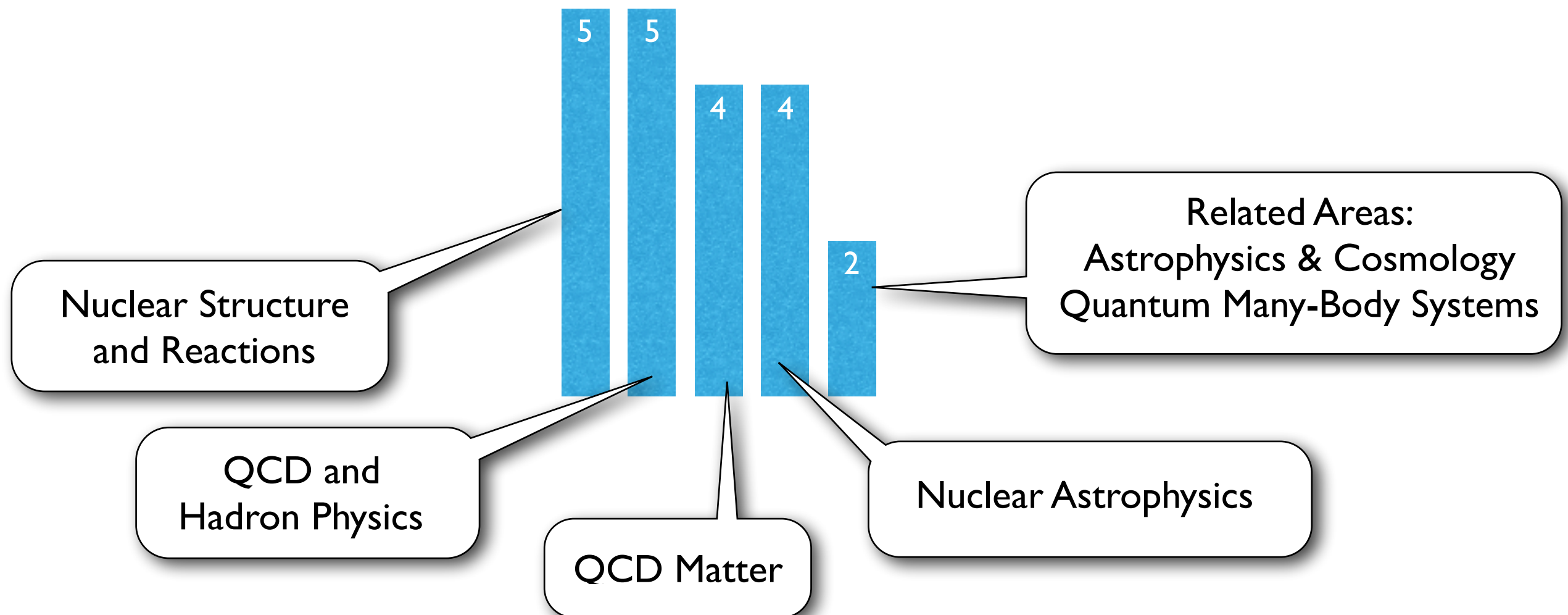
| | | | |
|---------------------|---|------------------------|--|
| 6-10 February | Unraveling the Complexity of Nuclear Systems: Single-Particle and Collective Aspects Through the Looking Glass Organisers: D. Lacroix (IPN Orsay), P. Capel (University of Bruxelles), G. Colò (University of Milano), M. Colonna (LNS-Catania), M. Grasso (IPN Orsay), A. Moro (University of Sevilla) | 10-14 July | Open Quantum Systems: From Atomic Nuclei to Ultracold Atoms and Quantum Optics Organisers: H.W. Hammer (TU Darmstadt), M. Efremov (University of Ulm), C. Forssen (Chalmers University of Technology), M. Gattobigio (Université de Nice-Sophia Antipolis, INLN, CNRS) |
| 27 February-3 March | QCD Challenges in pp, pA and AA Collisions at High Energies Organisers: R. Schicker (University of Heidelberg), G. Contreras Nuno (Czech Technical University), V. Goncalves (Universidade Federal de Pelotas), A. Szczurek (Institute of Nuclear Physics Krakow) | 17-28 July | The Charm and Beauty of Strong Interactions Organisers: B. El-Bennich (Universidade Cruzeiro do Sul), L. Tolos (ICE, CSIC-IEEC), M. Oka (Tokyo Tech and ASRC, JAEA), J. Nieves (Instituto de Física Corpuscular IFIC, CSIC and University of Valencia), A. Bashir (Universidad Michoacana de San Nicolas Hidalgo), K. Brinkman (Justus-Liebig-Universität Giessen), U. Wiedner (Ruhr-Universität Bochum) |
| 20-24 March | Superfluidity and Pairing Phenomena: From Cold Atomic Gases to Neutron Stars Organisers: A. Sedrakian (University of Frankfurt), J. W. Clark (Washington University St. Louis), E. Krotschek (University at Buffalo SUNY) | 21-25 August | Functional Methods in Hadron and Nuclear Physics Organisers: B.J. Schäfer (Justus-Liebig-Universität Giessen), J.M. Pawłowski (University of Heidelberg), D. Rischke (Johann Wolfgang Goethe-Universität Frankfurt) |
| 3-7 April | The Proton Mass: At the Heart of Most Visible Matter Organisers: Z.-B. Meiziani (Temple University), B. Pasquini (University of Pavia), J. Qiu (Brookhaven National Laboratory), M. Vanderhaeghen (University of Mainz) | 11-15 September | LFC17: Old and New Strong Interactions from LHC to Future Colliders Organisers: G. Corcella (INFN, Laboratori Nazionali di Frascati), S. De Curtis (INFN Firenze), S. Moretti (University of Southampton), G. Panzeri (INFN, Laboratori Nazionali di Frascati), R. Tenchini (INFN Pisa), M. Vos (Universidad de Valencia) |
| 10-14 April | Walk on the Neutron-Rich Side Organisers: S. Gandolfi (Los Alamos National Laboratory), V. Somà (CEA Saclay) | 25-29 September | Prospects on the Microscopic Description of Odd-Mass Nuclei and other Multi-Quasiparticle Excitations with Beyond-Mean-Field and Related Methods Organisers: L. Robledo (Universidad Autonoma de Madrid), M. Bender (Institut de Physique Nucléaire de Lyon), T.R. Rodriguez (Universidad Autonoma de Madrid) |
| 8-12 May | Space-Like and Time-Like Electromagnetic Baryonic Transitions Organisers: B. Ramstein (IPN Orsay), P. Cole (Idaho State University), A. Sarantsev (University of Bonn and Gatchina) | 9-13 October | New Perspectives on Neutron Star Interiors Organisers: G. G. Barnaföldi (Wigner Research Centre for Physics, Budapest), G. Baym (University of Illinois at Urbana-Champaign), L. Tolos (ICE, CSIC-IEEC) |
| 22-26 May | Landau Fermi-Liquid Theory in Nuclear and Many-Body Systems Organisers: A. Rios-Huguet (University of Surrey), D. Davesne (University/ IPN Lyon), A. Pastore (University of York) | 23-27 October | ASTRA: Advances and Open Problems in Low-Energy Nuclear and Hadronic STRAngeeness Physics Organisers: C. O. Ciaranu (LNF-INFN), E. Hiyama (RIKEN), J. Marton (SMI-Vienna), J. Pochodzalla (University of Mainz), I. Vidaña (University of Coimbra) |
| 5-9 June | Bridging Nuclear and Gravitational Physics: the Dense Matter Equation of State Organisers: A. Carbone (TU Darmstadt), A. Bauswein (Heidelberger Institut für Theoretische Studien), J.M. Lattimer (Stony Brook University), J.A. Clark (Georgia Institute of Technology) | 6-10 November | Dilepton Productions with Meson and Antiproton Beams Organisers: J.C. Peng (University of Illinois at Urbana-Champaign), W. C. Chang (Academia Sinica, Taipei), S. Platchkov (IRFU, CEA Saclay), O. Teryaev (Bogoliubov Laboratory of Theoretical Physics) |
| 12-16 June | Nuclear Astrophysics in the Gravitational-Wave Astronomy Era Organisers: F. Pannarale (Cardiff University), B. Giacomazzo (Università di Trento and INFN-TIFPA), O. Benhar (INFN/Università "La Sapienza", Rome) | 20-24 November | Axions at the Crossroads: QCD, Dark Matter, Astrophysics Organisers: A. Mirizzi (University of Bari), M.P. Lombardo (INFN Laboratori Nazionali di Frascati) |
| 12-30 June | Doctoral Training Programme: Microscopic Theories of Nuclear Structure, Dynamics and Electroweak Currents Organiser: O. Benhar (INFN/Università "La Sapienza", Rome) | 27 November-1 December | Phase Diagram of Strongly-Interacting Matter: From Lattice QCD to Heavy-Ion Collision Experiments Organisers: A. Bazavov (Michigan State University), M. D'Elia (University of Pisa), M. Nahrgang (Subatech and Ecole des Mines Nantes) |
| 28-30 June | Simulating QCD on Lefschetz Thimbles Organisers: C. Schmidt (University of Bielefeld), A. Alexandru (George Washington University), P. Bedaque (University of Maryland) | | |
| 3-21 July | TALENT School: Nuclear Theory for Nuclear Structure Experiments Organisers: A. Brown (Michigan State University), M. Hjorth-Jensen (Michigan State University), A. Gade (Michigan State University), R. Grzywacz (University of Tennessee and Oak Ridge National Laboratory), G. Jansen (Oak Ridge National Laboratory) | | |



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ECT* Scientific Events 2017



ECT* Doctoral Training Programme 2017

Trento, June 12-30

Microscopic Theories of Nuclear Structure, Dynamics and Electroweak Currents

Programme Coordinator

Omar Benhar (INFN and Università La Sapienza)

Students' Coordinator and Advisor

Georges Ripka (Saclay and ECT*)

Lecturers and topics

Carlo Barbieri (*University of Surrey, UK*)

Omar Benhar (*INFN and Università La Sapienza, Italy*)

Evgeny Epelbaum (*Ruhr-Universität Bochum, Germany*)

Stefano Gandolfi (*Los Alamos National Laboratory, USA*)

Luca Girlanda (*Università del Salento, Italy*)

Alessandro Lovato (*Argonne National Laboratory, USA*)

Robert Roth (*Technische Universität Darmstadt, Germany*)

Rocco Schiavilla (*Jefferson Lab. and Old Dominion University, USA*)

Self-Consistent Green's Function Approach

Electron Scattering Studies of Nuclear Structure

Nuclear Dynamics from Chiral EFT

Quantum Monte Carlo Approach

Nuclear Electroweak Current within Chiral EFT

Correlated Basis Function Approach

No-Core Shell Model Approach

Phenomenological Nuclear Interactions and Currents



ECT* Scientific Events 2017



ECT* Nuclear TALENT School 2017

Trento, July 3-21

Theory for Exploring Nuclear Structure Experiments

Organizers

Alex B. Brown (*Michigan State University*) - Morten Hjorth-Jensen (*Michigan State University and University of Oslo*)

Students' Coordinator and Advisor

Morten Hjorth-Jensen (*Michigan State University and University of Oslo*)

Topics

Basic elements of nuclear many-body physics

Nuclear forces and effective interactions

The nuclear shell model

Nuclear structure experiments and nuclear many-body theory

Lecturers

Alex B. Brown (*Michigan State University, USA*), Alexandra Gade (*Michigan State University, USA*),

Robert Grzywacz (*University of Tennessee and Oak Ridge National Laboratory, USA*),

Morten Hjorth-Jensen (*Michigan State University, USA and University of Oslo, Norway*),

Gustav R. Jansen (*Oak Ridge National Laboratory, USA*)








Become an Associate of ECT* !



Associates are all scientists that have positions in Universities or Laboratories worldwide involved in scientific activities within the scope of ECT*, and who have registered at ECT*.

Associates are consulted for advice concerning the scientific programs of the Centre and identification of scientists as Board Members. Membership in the Body of Associates of ECT* is renewed on a tri-annual basis.

-  WHERE WE ARE →
-  CONTACTS →
-  PEOPLE →
-  JOBS →
-  BECOME AN ASSOCIATE →