

# From Hadrons to Therapy: Fundamental Physics driving new medical advances

Trento, 5 – 9 September 2022

The development of modern radiation-based medical imaging and treatment tools is closely interlinked with the progress in Nuclear Physics and related areas. Improving cutting-edge cancer therapies (such as radiotherapy using ion beams, targeted radionuclide therapy, or their enhancement by means of nanotechnology) and imaging techniques (e.g. positron emitting tomography) requires research in Nuclear Physics along with Atomic-Molecular and Condensed-Matter Physics. Research in these fields is necessary to get a better understanding of the plethora of fundamental processes underlying their medical applications, including nuclear reactions of energetic ions in the body, radioactive decay of their fragments or of supplied radioisotopes, or the many-body processes involved in the nanoscale biomolecular radiation damage mechanisms in the condensed-phase. This workshop (the first at ECT\* devoted to medical applications of Nuclear Physics) aims to gather theoretical, experimental and clinical experts from these diverse fields in order to foster multidisciplinary understanding and collaboration, for the advancement of radiation-based medical techniques and their fundamental physical understanding.

## Organizers

Pablo de Vera Gomis (Universidad de Murcia), Marco Durante (Helmholtzzentrum für Schwerionen forschung, Darmstadt), Cornelia Hoehr (TRIUMF, Canadian Particle Accelerator), Katia Parodi (Ludwig-Maximilians-Universität München), Valeria Conte (LNL, INFN, Legnaro), Jorge Kohanoff (Universidad Politécnica de Madrid), Marco Schwarz (University of Washington Seattle), Rafael Garcia-Molina (Universidad de Murcia)

## Key Speakers

Daria Boscolo, Marco Cianchetti, Fabrizio Cleri, George Dedes, Michael Dingfelder, Dimitris Emfietzoglou, Francesco Fracchiolla, Gustavo García, Antonio Giordano, Julie Lascaud, Jean-Luc Ravanat, Anatoly Rosenfeld, Antoni Rucinski, Leon Sanche, Francesca Triggiani, Emanuele Scifoni, Joao Seco, Jefferson Shinpaugh, Nidhi Sinha, Simone Taioli, Hua Yang

## Director of the ECT\*: Professor Gert Aarts

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