

HITRIplus partners

HITRI
Heavy Ion Therapy Research Integration
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CNAO Centro Nazionale di Adroterapia Oncologica

BEVATECH

cea

Laboratorio Nacional de Fusión
Ciemat

CERN

COSYLAB

GSI GSI Helmholtzzentrum für Schwerionenforschung

INFN National Institute for Nuclear Physics

MedAustron

PSI PAUL SCHERRER INSTITUT

RIGA TECHNICAL UNIVERSITY

SEE South East European International Institute for Sustainable Technologies

UKGM UNIKLINIKUM GIESSEN UND MARBURG

UNIVERSITÄTSKLINIK HEIDELBERG

L-Università ta' Malta

Philipps Universität Marburg

UPPSALA UNIVERSITY SWEDEN

WIGNER

KLINIČKI CENTAR Crne Gore

Jožef Stefan Institute

SENIS magnetic & current measurement

Cyrl and Methodius University in Skopje

HEAVY ION THERAPY RESEARCH INTEGRATION PLUS

A NEXT GENERATION TOOL AGAINST CANCER

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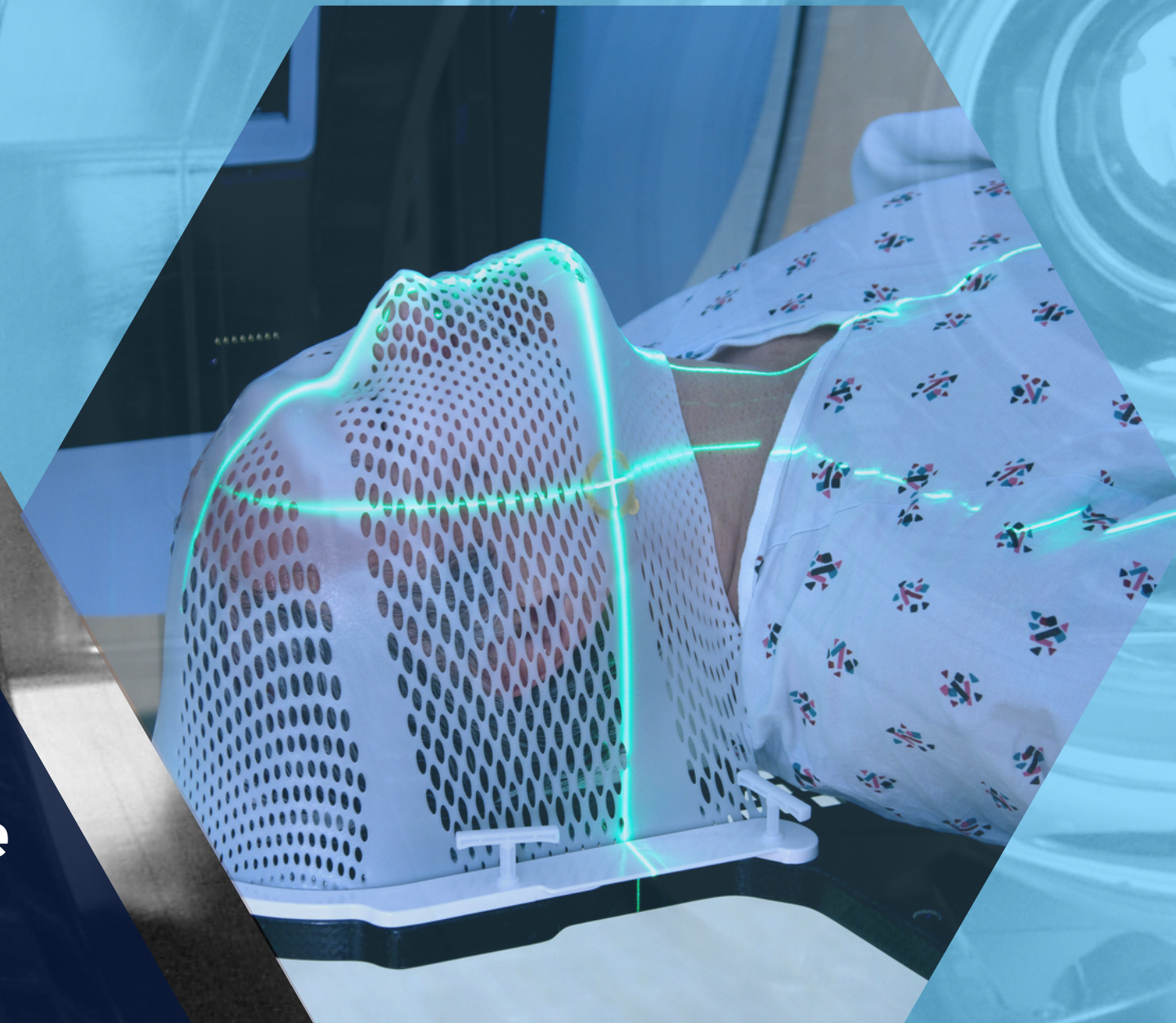
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101008548



COORDINATOR'S ROLE

The management of the project is ensured by CNAO, supported by CERN, GSI, and SEEIIST.

CNAO



CLINICAL AND RESEARCH TRANSNATIONAL ACCESS

Providing transnational access (TA) to the medical and research communities interested in acquiring knowledge in carbon-ion radiotherapy.

ABOUT

Heavy Ion Therapy Research Integration plus (HITRIplus) project is a research project funded by the European Commission under the HORIZON 2020 programme H2020-INFRAIA-2020-1. The project, which started the 1st of April 2021 and has a duration of 4 years, is looking to integrate and propel biophysics and medical research on cancer treatment with heavy ions beams while jointly developing its sophisticated instruments.

To apply for TNA:



JOINT RESEARCH ACTIVITIES



ADVANCED ACCELERATOR AND GANTRY DESIGN

Develop solutions to enhance the performance of existing and future accelerators for heavy ion research and therapy: multiturn injection, improved extraction and beam transport, and a new linac injector).

CONTROLS AND SAFETY

Analyse and determine the best solutions for an upgrade of current and future facilities in terms of performance and cost. A novel design for the control software and safety systems will be elaborated.

MULTIPLE ENERGY EXTRACTION SYSTEM

Investigation of multiple energy operation as a possible future mode of operating the synchrotron to shorten the phases without beam extraction.

BEAM DELIVERY

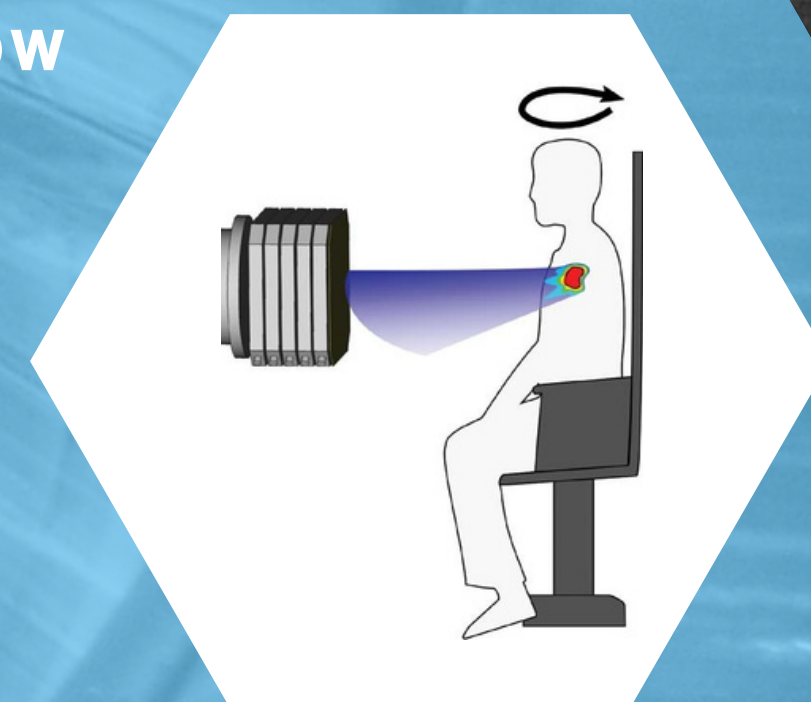
A patient chair and associated vertical imaging will be investigated to enable particle arc therapy. Novel detector technology will be used to speed-up beam delivery, and potentially allow a combination of flash and arc therapy.

RADIOBIOLOGICAL DOSIMETRY AND QA

Aims to be able to meaningfully evaluate and compare research results, and to standardize radiation dosimetry among the centres. The partners will share the same phantom for in vitro dosimetry and different biological models will be chosen and compared both in normoxia and for hypoxic conditions.

SUPERCONDUCTING MAGNET DESIGN

The objective of superconducting magnet design group is to perform a first technical and financial assessment of various magnet designs for a novel type of carbon ion synchrotron and gantry complex.



NETWORKING ACTIVITIES



NETWORKING AND COMMUNICATION, DISSEMINATION AND OUTREACH

A team of communication experts is working to enhance the internal synergies, produce outreach materials and provide added value by allowing information flow to/from other projects and the general public as well as within the HITRIplus.

CLINICAL NETWORKING

A review of preclinical data to identify promising novel approaches to exploit the heavy-ion radiation therapy advantages and the design of one trial as a template for bringing innovative heavy ion RT approaches to the clinics.

INNOVATION AND TECHNOLOGY TRANSFER

Define and implement a roadmap for the exploitation and industrialisation of the HITRIplus technologies and innovations.

EDUCATION AND TRAINING

Postgraduate students, postdocs, and researchers from a wider multidisciplinary community will be educated and trained to form part of this heavy ion therapy research community through specialised courses, masterclasses, e-learning courses, secondments and internships.



#JOINT RESEARCH



HITRIPLUS -
HEAVY ION THERAPY
RESEARCH INTEGRATION



@HEAVYION



HITRIPLUS

**Heavy Ion Therapy
MasterClass School** | 17 - 22 May 2021
Online Course

The program is intended for the students of the following disciplines Medical Physics, Physics, Radiotherapy, Radiology, Bioengineering and Imaging and Radiotherapy Techniques and early stage researchers.

In collaboration with

PHYSICS

RADIOTHERAPY

RADIOLOGY

BIOENGINEERING

MEDICAL

IMAGING & RADIOOTHERAPY

PHYSICS

TECHNIQUES

Topics

- Particle Therapy
- Treatment Planning
- Accelerator Physics
- Beam Delivery

Scope

Focus on Heavy Ion Therapy Treatment Planning Systems (TPS) including lectures, treatment planning tool demonstrations, hands-on exercises and student projects.

Programme Committee

- Y. Foka (GS/EMU, CERN)
- A. Gazibegović-Busuladžić (UNSA)
- N. Sammut (Uni. Malta)
- M. Sapinski (SEEIST)

Scientific Assistants

- J. Seco (DKFZ)
- M. Vretenar (CERN)
- N. Wahl (DKFZ)
- H.P. Wieser (LMU)

Scientific Assistants

- A. Mamasas (AUT/CERN)
- A. Kapić (EPFL/CERN)
- D. Škrjatelj (UNSA/DKFZ)
- R. Taylor (ICL/CERN)

SIGN UP NOW TO THE FIRST HEAVY ION THERAPY COURSE!

Registration link: <https://indico.cern.ch/e/HeavyIonTherapyMasterClass>
Registration deadline: 15 May 2021

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