

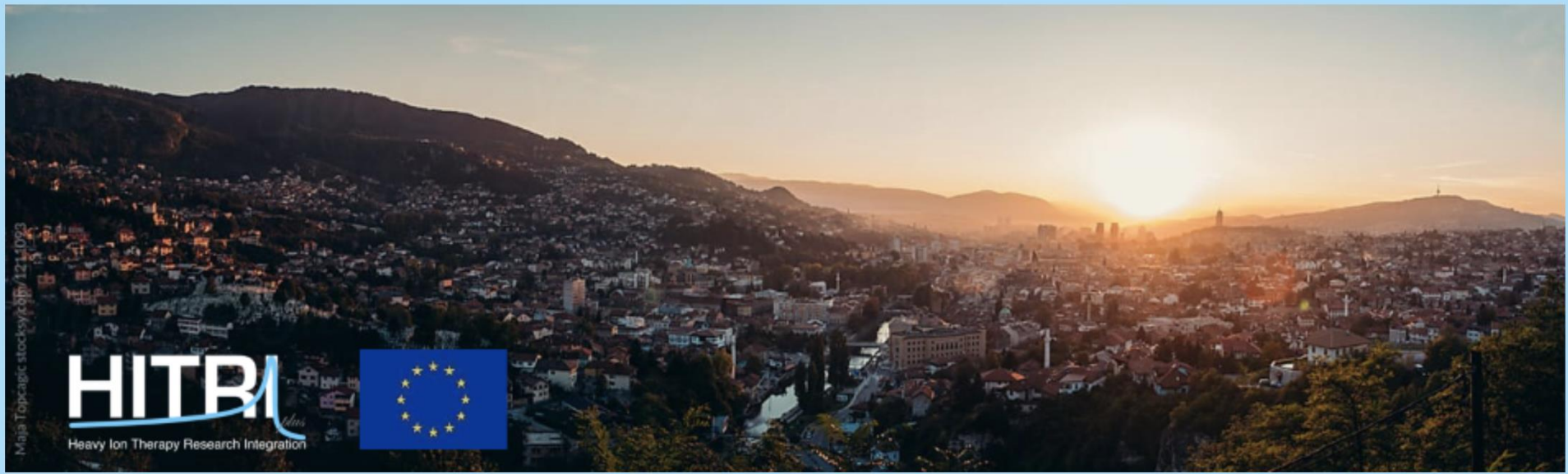
Roadmap Heavy Ion Therapy MasterClass School 17-21 May 2021

YIOTA FOKA (GSI)

FOR THE ORGANISERS



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



Heavy Ion Therapy Masterclass School

17-22 May 2021
Sarajevo-Online
Europe/Sarajevo timezone

<https://indico.cern.ch/e/HeavyIonTherapyMasterClass>

Home

Organizers and Sponsors

Objectives and Scientific
Programme

Poster School

Participant List

798 participants

842

Registration Form

Statistics for 732 participants

- 36 lecturers
- 151 young researchers
- 163 PhD students
- 126 Master students
- 206 Undergraduate students



Heavy Ion Therapy Masterclass School

Connection Instructions

<https://indico.cern.ch/e/HeavyIonTherapyMasterClass>

Home
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Poster Social Events
Agenda
... Timetable
Registration Fees and Instructions
Registration Form
Participant List
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MatRad Instructions
Zoom Instructions
Photos Gallery
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Contact
✉ hitm.adm@cern.ch

webcasting with support of CERN IT:

<https://webcast.web.cern.ch/event/i1024183>

Webcast link

Participants should join the webcast through the link: <https://webcast.web.cern.ch/event/i1024183>

Participant that will join hands-on and students afternoon sessions, they will be provided a zoom link also through webcast.

Shared document to submit questions

Participants can ask experts questions through this shared document:

<https://docs.google.com/document/d/1QXEi7wai8QtvNIWEcr1mcy7GgTuqGfUfY4nCADrc2v0/edit>

Evaluation form

Please use the evaluation form to give us your opinion, comments about the school:

https://docs.google.com/forms/d/1rF1A5U7rBTSPjQ42Zb_Q9Fj7oG3cE6Q8ZdZYvlf_yg/edit

Social Events:

SIGNup Social Events Mon: ENLIGHT Networking

<https://forms.gle/4P2Db1LS5YG5fNEw9>

Please check every day
for any updates

Please use the

- shared doc to insert questions
- registration for Social Events
- evaluation form

Recordings available in the timetable
for the ones at different time zones

Info on certificate of attendance
via the web page.

Heavy Ion Therapy Masterclass

17th May - 21st May 2021
Evening Socials
From 18:00




MON	Introductory Drinks <i>Meeting the other attendees with drinks!</i> Speaker: Manjit discussing the ENLIGHT network Dress Code: Smart Casual
TUE	Language Cafe <i>Learn other languages & cultures!</i> Speaker: Mimosa - ion treatment for beginners Dress Code: Traditional
WED	Student Q&A <i>Ask advice & chat to current students</i> Speaker: CERN Knowledge Transfer Dress Code: Pyjama Party
THU	Tours, Games & Disco <i>Share music tastes & play games & quizzes</i> Dress Code: Impress Us.
FRI	Career Fair <i>Discussion with experts on career paths</i> Speakers: CERN, GSI, CNAO, DKFZ & Cosylab Dress Code: Formal Attire



Social Events

The Hosting team @ Social Events:



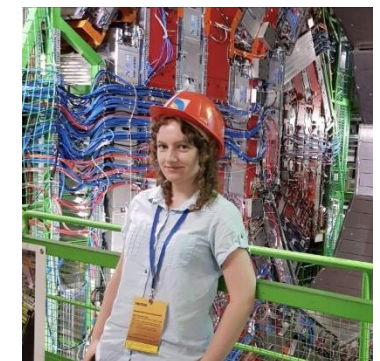
Amar Kapić
PhD student
EPFL/CERN



Aristeidis Mamaras
MSc student
AUTH/CERN



Damir Škrijelj
MSc student
UNSA/DKFZ



Rebecca Taylor
PhD student
ICL/CERN

Every evening 18:00-19:00 CET



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Social Events

The Platform

SpatialChat : max 250 participants per evening

Link: <https://spatial.chat/s/IonTherapyMasterclass>

The Events and Registration Forms

SIGN up Registration Forms for Social Events

Mon <https://forms.gle/4P2Db1LS5YG5fNEw9>

Tue <https://forms.gle/7CnA6JbdDoAapX387>

Wed <https://forms.gle/yS9seUB67RCL33NC9>

Thu <https://forms.gle/bDxzWeEv1DgFjTdF6>

Fri <https://forms.gle/4F6ni3NkWy6dCb6X8>

PHOTOS Dress Theme

https://drive.google.com/drive/folders/1Y_bPkiAC7wB79HeUEsezvjiZgN_QUM79?usp=sharing

Every evening 18:00-19:00 CET



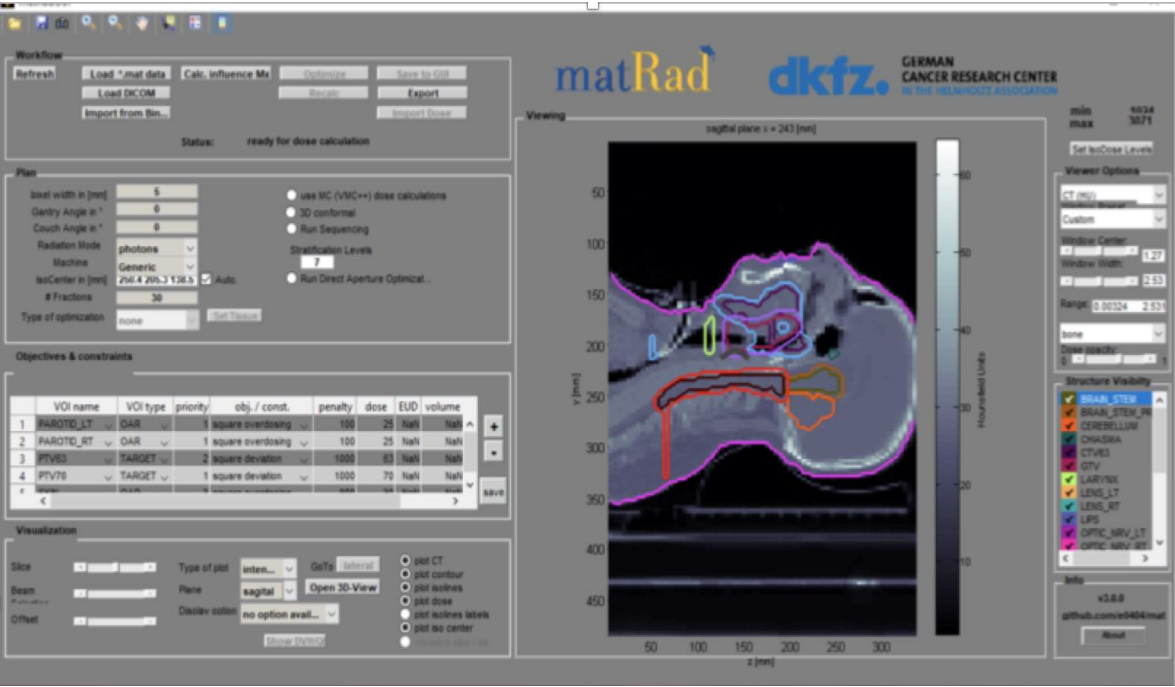
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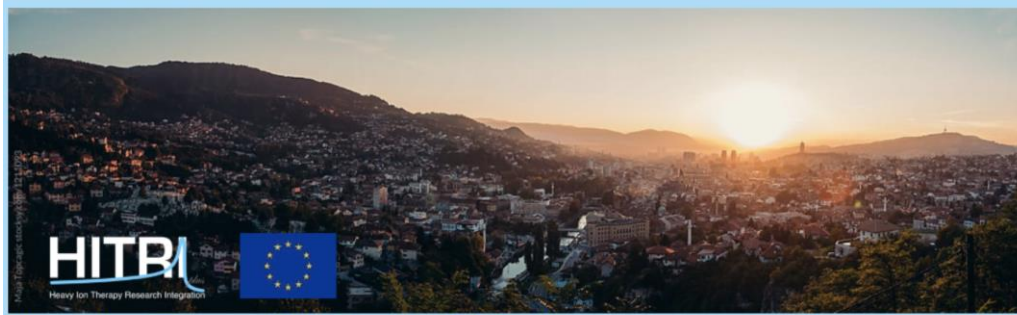
Treatment Planning



Virtual Therapy Centre

Focus: Treatment Planning and all it entails to deliver the beam to the target





Heavy Ion Therapy Masterclass School

School Lectures

Timetable: <https://indico.cern.ch/event/1024183/>

- Home
- Organizers and Sponsors
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- Poster School
- Poster Social Events
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- Timetable**
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 - hitm.adm@cern.ch

Timetable Heavy Ion Therapy MasterClass School 17 May 2021

17 May 2021, 08:23 → 22 May 2021, 19:00 Europe/Zurich

Webcast

There is a live webcast for this event

Watch

Main Topics:

- Heavy ion therapy
- Treatment planning
- Medical accelerators and accelerator physics including:
 - Ion sources
 - Beam optics
 - Beam delivery systems
 - Controls
- Linear accelerators for isotope production
- Radiation protection and safety
- Imaging for particle therapy and diagnostics
- Biophysics
- Machine learning applications for particle therapy
- European heavy ion therapy centres:
 - Current activities
 - Future upgrades

**Recordings available in the timetable
for the ones at different time zones**

multidisciplinary facets of heavy- ion therapy
many different interesting career paths in many different fields
where there is lack of specialised personnel



School Lectures

Timetable: <https://indico.cern.ch/event/1024183/>

Friday afternoon Sessions: Future Plans

dedicated to future projects
and upgrades

based on the current experiences of existing
heavy-ion therapy centres
and needs for further research

Experiences of existing heavy ion therapy and research infrastructures, Future Plans, Upgrades

Input from HIT, MIT, MedAustron, CNAO, GSI, CERN, SEEIIST

13:15

Clinical experience on benefits of heavy-ion therapy

Speaker: Ester Orlandi (CNAO)

13:30

MedAustron experience with heavy ion therapy

Speaker: Piero Fossati (MedAustron)

13:40

Particle therapy approach exploring the synergies between carbon ion and immune response

Speaker: Slavisa Tubin (MedAustron)

13:50

From pioneering heavy ion therapy at GSI to the HIT and MIT hospitals

Speaker: Christian Graeff (GSI)

14:10

From fundamental research to medical applications

Speaker: Manuela Cirilli (CERN)

14:30

CNAO Accelerator complex and upgrade plans

Speaker: Marco Pullia (CNAO)

14:45

Accelerator complex for next generation heavy ion therapy and research facilities

Speaker: Mariusz Sapinski (SEEIIST)



School Format

Timetable: <https://indico.cern.ch/event/1024183/>

Afternoon Sessions: “Interactive Experiences”

- Hands-on sessions, “do it yourself” guided by experts, with real data and professional tools and methods
- Presentations by students of hands-on results or projects
- Discussions with experts from different Labs
- Visits of Labs

All sessions will be webcasted:

<https://webcast.web.cern.ch/event/i1024183>

zoom links will be communicated to participants of each session via the webcast, allowing for easier interaction with tutors (depending on the number of participants of each session).



14:00	→ 16:00	Hands-On Treatment Planning Basics Conveners: Hans-Peter Wieser (LMU Munich) , Niklas Wahl (Deutsches Krebsforschungszentrum)
		Agenda
16:00	→ 16:15	Complete the evaluation form
		Evaluation Form
16:15	→ 16:30	Coffee Break
16:30	→ 18:00	Interaction with Experts, Students Presentations, Virtual Visits Virtual Visit to therapy centers or labs; discussion of results with experts from therapy center Conveners: Yiota Foka (GSI - Helmholtzzentrum für Schwerionenforschung GmbH (DE)) , Arist Graeff (GSI) , Marco Pullia (CNAO) , Angelica Facoetti (CNAO)
		Agenda
18:00	→ 19:00	SOCIAL EVENT: Language & Culture Cafe



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Timetable: <https://indico.cern.ch/event/1024183/>

Hands-on results and students presentations

Interested participants can drop results of hands-on session:

<https://docs.google.com/document/d/1K5wGM9sZJNQauvaS6P5jfm30mUNzPPdChCFQ0o7KDKM/edit>

to discuss them during the students session with the experts

Some student's presentations have been scheduled already:

mostly master's and/or CERN summer students supported by private sponsor wishing to strengthen this kind of research and support young researchers in this field

For presentations please contact us

School Format

Interaction with Experts, Students Presentations, Virtual Visits

Virtual Tour to therapy centers or labs; discussion of results with experts from therapy centers/research labs

Conveners: Angelica Facchetti (CNAO), Aristeidis Mamaras (Aristotle University of Thessaloniki (GR)), I. Foka (GSI - Helmholtzzentrum für Schwerionenforschung GmbH (DE))

[Video Visit to CNAO](#)

16:30

Connection to GSI, Video/Visit

Speaker: Christian Graeff (GSI)

16:40

Connection to CNAO, Video/Visit

Speaker: Marco Pullia (CNAO)

17:00

Connection to CNAO, Video/Visit

Speaker: Angelica Facchetti (CNAO)

17:20

Simulations of Low Energy Beam Transport

Speaker: Benjamin Dedic (University of Sarajevo (BA))

17:30

Hands-on TP Results and Radiation Therapy for Cancer Treatment

Speaker: Maja Kuzmanovic

17:35

Hands-on TP Results and Cancer Data Platform

Speaker: Andrijana Gjoreska (Ss. Cyril and Methodius University)

17:40

Q&A with experts

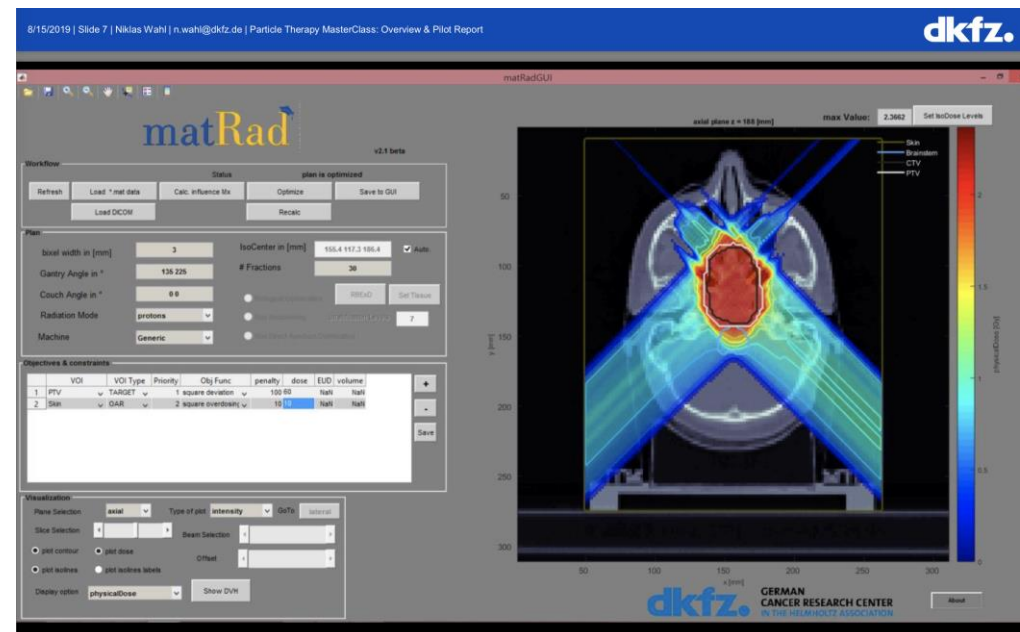
Speakers: Marko Pullia (CNAO), Christian Graeff (GSI), Angelica Facchetti (CNAO)



matRad Treatment Planning toolkit

Home
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Timetable
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Hands-on: based on professional open source treatment planning toolkit matRad, developed by Heidelberg DKFZ www.matrad.org



14:00 → 15:30 Cancer Radiotherapy Introduction

Speaker: Joao Seco (DKFZ)

15:30 → 16:00 MatRad General Introduction

Speakers: Hans-Peter Wieser (LMU Munich), Niklas Wahl (DKFZ)

16:00 → 16:15 Complete the evaluation form

[Evaluation Form](#)

16:15 → 16:30

16:30 → 18:00 MatRad Installation & Data

Conveners: Hans-Peter Wieser (LMU Munich), Niklas Wahl (DKFZ)

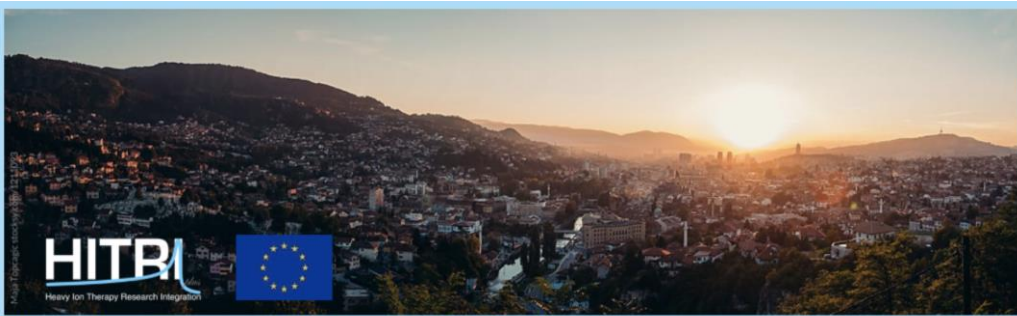


Heavy Ion Therapy Research Integration

matRad - an open-source toolkit for dose calculation and optimization



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Heavy Ion Therapy Masterclass School

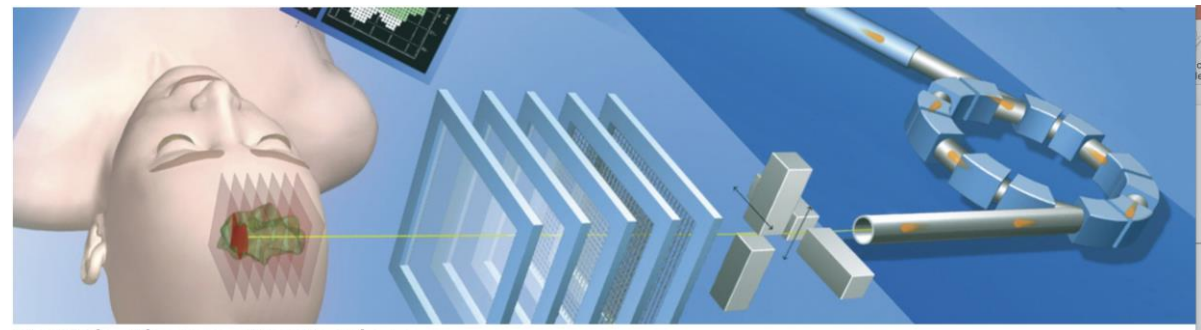
<https://indico.cern.ch/e/HeavyIonTherapyMasterClass>

Full week course

The HITRIplus HITM school is **aimed at university students, and up to early stage researchers.**

First of a series of schools and actions within HITRIplus to support the ones that *show strong promise and interest in becoming part of the heavy ion research community and who may then exploit and access Europe's heavy ion therapy research infrastructures.*

Details on internships and 2 future schools focusing on **medical physics and clinical aspects** by the WorkPackage coordinator Prof Nicholas Sammut



Particle Therapy Masterclass

<https://indico.cern.ch/event/840212/>

One day activity

The Particle Therapy MasterClass, is **aimed at high-school students (16-18),** to motivate them to choose related university studies.

Future Tutors



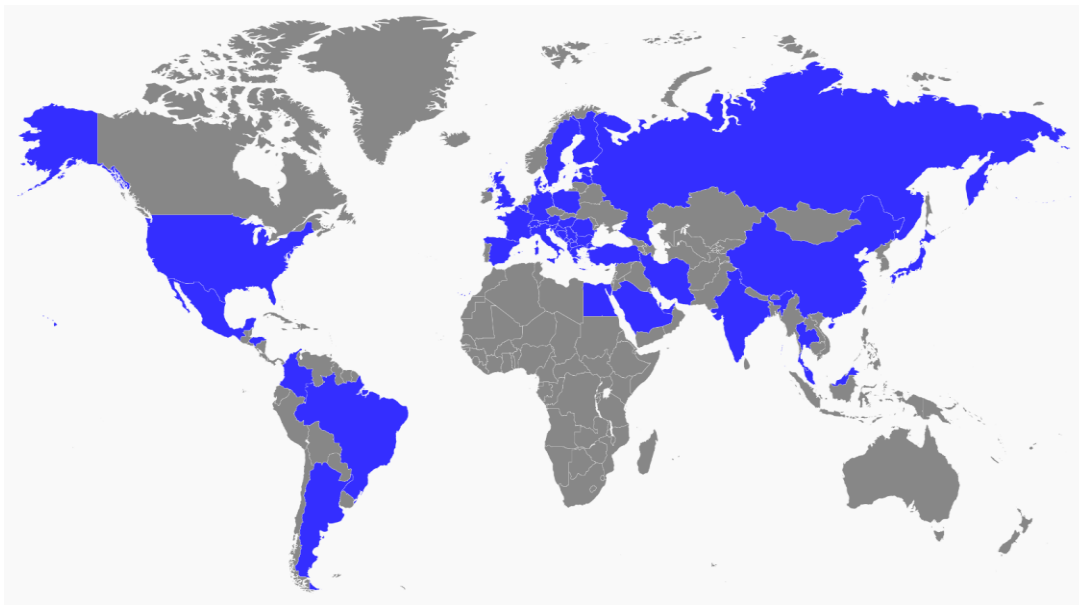
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World-wide reach motivating next generation of scientists

HITRIplus full week heavy-ion therapy masterclass school



Heavy Ion Therapy Masterclass School



HITRI
Heavy Ion Therapy Research Integration

International MasterClasses one day activity



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Shaping our Future Cities and Communities

[Learn more](#)

Strengthening the heavy-ion community

<https://enlight-eu.org>

ENLIGHT NEWS



Join the ENLIGHT Impact Assessment session 26 May



Promoting inclusive and green mobility in ENLIGHT



Save-the-date: ENLIGHT Teaching and Learning

PARTNER NEWS



French Government to support ENLIGHT through "Investissements d'avenir" programme via the University of Bordeaux



Call for Papers - Young Researcher Conference 'German Studies in the Semiosphere' (Tartu, 14-15 October 2021)

UPCOMING EVENTS

ENLIGHT Impact Assessment session

🕒 26.05.2021 12:00

ENLIGHT Mid-year Meeting

🕒 17.06.2021 - 18.06.2021

Cluster Conference on Social Responsibility in

Evaluation form:
details on how got information about the school

Targeting heavy-ion therapy community via the ENLIGHT Network



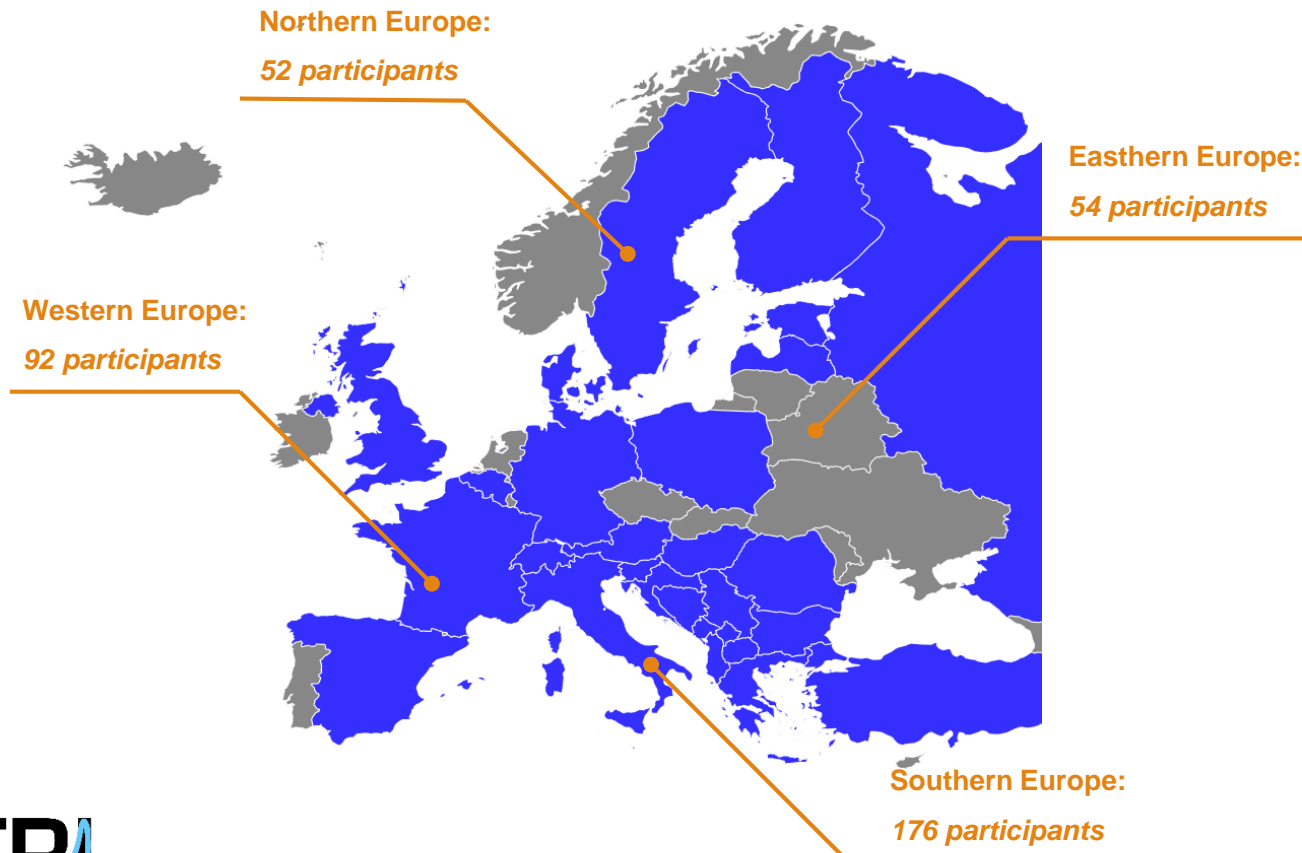
Presentation Mon Social Events by Prof Manjit Dosanjh



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Expanding in Europe and beyond



European countries:

- 374 participants

Non-European countries:

- 358 participants

**Diversity,
sharing knowledge, know-how,
building capacity**

Example: Benha uni. Egypt

80 students in an auditorium
Faculties of Science, Medicine,
Engineering, Agriculture



Thanks to all supporting institutes



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Thanks to all lecturers, speakers, moderators...

Speakers and Lecturers:

1. Amer Ajanović
2. Elena Benedetto
3. Uta Bilow
4. Giovanni Bisoffi
5. Manuela Cirili
6. Haris Dapo
7. Mirza Dautbasic
8. Manjit Dosanjh
9. Ana Đorđević
10. Angelica Facchetti
11. Yiota Foka
12. Piero Fossati
13. Nadia Gambino
14. Christian Graeff
15. Milkos Jaksic
16. Silvia Meneghello
17. Uros Mitrović
18. Silvia Molinelli
19. Monica Necchi

Institutes:

- ICL
- SEEIIST
- TU Dresden
- INFN
- CERN
- ANKARA Univ./TARLA
- UNSA
- ENLIGHT/SEEIIST/CERN
- CERN
- CNAO
- GSI/EMMI
- MedAustron
- MedAustron
- GSI
- IRB
- CNAO
- Cosylab JSC
- CNAO
- CNAO

20. Ester Orlandi
21. Matej Polzelnik
22. Marco Pullia
23. Ash Ravikumar
24. Mimoza Ristova
25. Mariusz Sapinski
26. Joao Seco
27. Rebecca Taylor
28. Markus Stock
29. Dasa Stupica
30. Albana Topi
31. Slavisa Tubin
32. Viviana Vitolo
33. Vasilis Vlachoudis
34. Maurizio Vretenar
35. Niklas Wahl
36. Hans Peter Wieser

- CNAO
- Cosylab JSC
- CNAO
- CERN
- UKIM
- SEEIIST
- DKFZ
- ICL
- MedAustron
- Cosylab JSC
- GSI
- MedAustron
- CNAO
- CERN
- CERN
- DKFZ
- LMU



**Thanks to all co-organisers
and assistants dream teams**

Programme Committee:

Y. Foka, chair (GSI/EMMI)
A. Gazibegović-Busuladžić (UNSA)
N. Sammut (Uni. Malta)
M. Sapinski (SEEIIST)
J. Seco (DKFZ)
M. Vretenar (CERN)
N. Wahl (DKFZ)
H.P. Wieser (LMU)

Scientific Assistants:

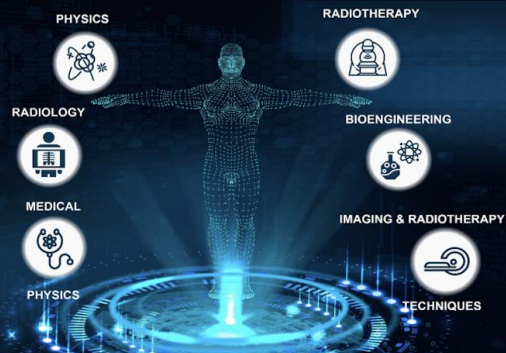
A. Mamaras (AUFH/CERN)
A. Kapić (EPFL/CERN)
D. Škrijelj (UNSA/DKFZ)
R. Taylor (ICL/CERN)

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



Topics

- Particle Therapy
- Treatment Planning
- Accelerator Physics
- Beam Delivery
- Radiation Protection
- Imaging
- Biophysics
- AI/ML for Particle Therapy

Programme Committee

- Y. Foka (GSI/EMMI, Chair)
- A. Gazibegović-Busuladžić (UNSA)
- N. Sammut (Uni. Malta)
- M. Sapinski (SEEIIST)
- J. Seco (DKFZ)
- M. Vretenar (CERN)
- N. Wahl (DKFZ)
- H.P. Wieser (LMU)

Scope

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

Scientific Assistants

- A. Mamas (AUTH/CERN)
- A. Kapić (EPFL/CERN)
- D. Škrjelj (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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Heavy Ion Therapy Masterclass

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FRI

Career Fair

Discussion with experts on career paths

Speakers: CERN, GSI, CNAO, DKFZ & Cosylab
Dress Code: Formal Attire

Thanks to the Artists Teams

Enjoy !! the School and its Social Events !

Thanks for participating !

Special Thanks to **SpatialChat** for facilitating
Social Events



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