

**Welcome to the**

**Final Meeting of the**

**MediNet Networking Activity**

**within the ENSAR-2 activity, funded by EU Horizon 2020 program**

ENSAR-2 =

**Integrating Activity** for European nuclear scientists  
who are performing research in three of these major subfields:

**Nuclear Structure**

**Nuclear Reactions and**

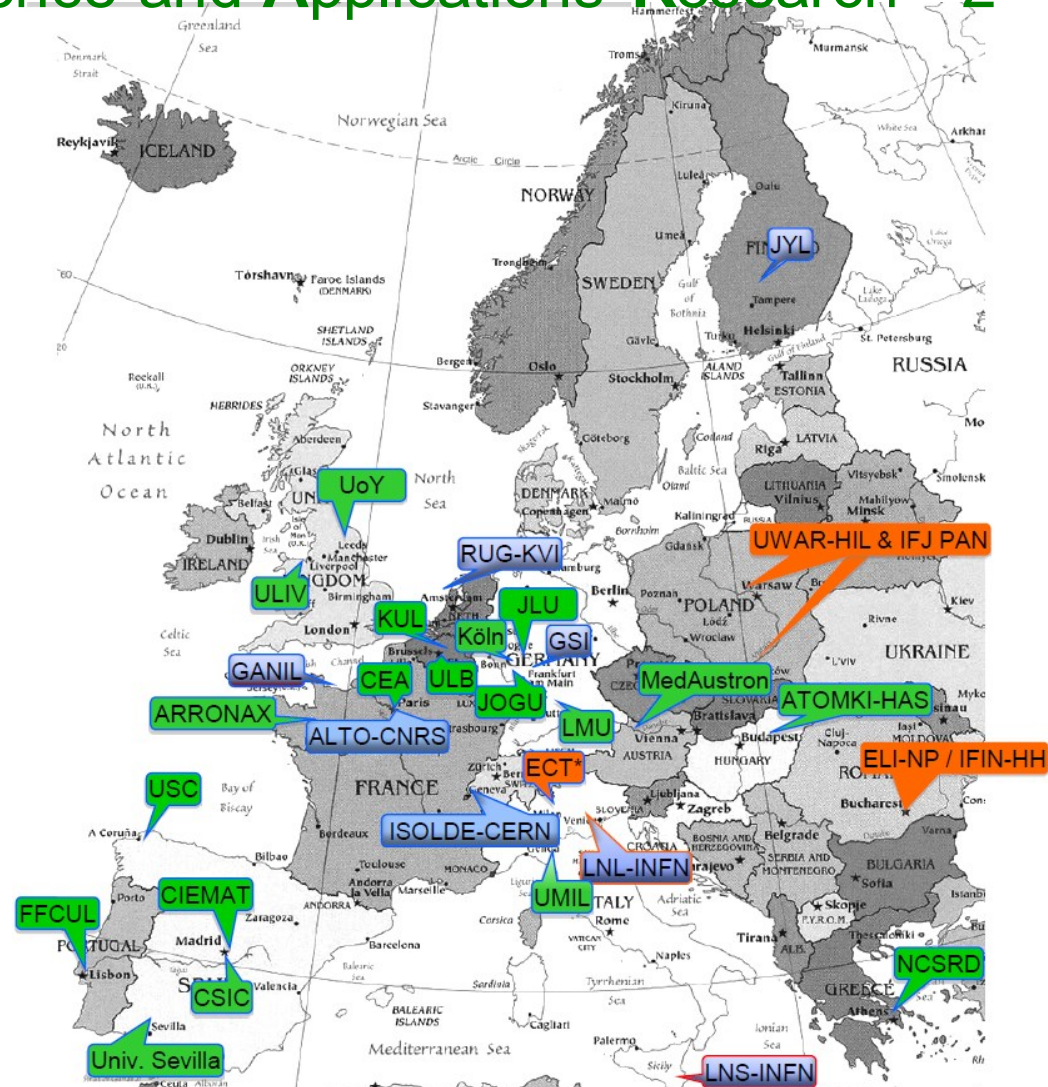
**Applications of Nuclear Science**

March 2016 - February 2020

## European Nuclear Science and Applications Research - 2

### ENSAR2 consortium:

- 10 Transnational Access research facilities
- 30 beneficiary institutions
- project duration: 48 months, March 2016 – February 2020
- coordination: GANIL (Caen/France)  
Muhsin Harakeh



## **MediNet Status Report:**

**from the Perspective of the Coordinators**

MediNet Task 1

+

MediNet Task 2

=

MediNet

## (Reminder of) Project Goals

### Task 1 : Research on Detector Instrumentation for Radiation Therapy (14 initial + 3 associated groups; P. Thirolf / LMU)

- R&D on improved detection techniques (particles/photons/electronics)
- provide a training ground for students: mobility program/exchange
- coordinate experimental efforts

### Task 2: Nuclear Tools for Ion Beam Therapy (11 initial + 8 associated groups; G. Magrin / MedAustron)

- Radiation quality in Ion Beam Therapy
- Monte Carlo GEANT4 simulation
- Biological assessments

In the spirit of an open network MediNet:

new partner groups joined as (non-beneficiary) associates:

## MediNet Task 1

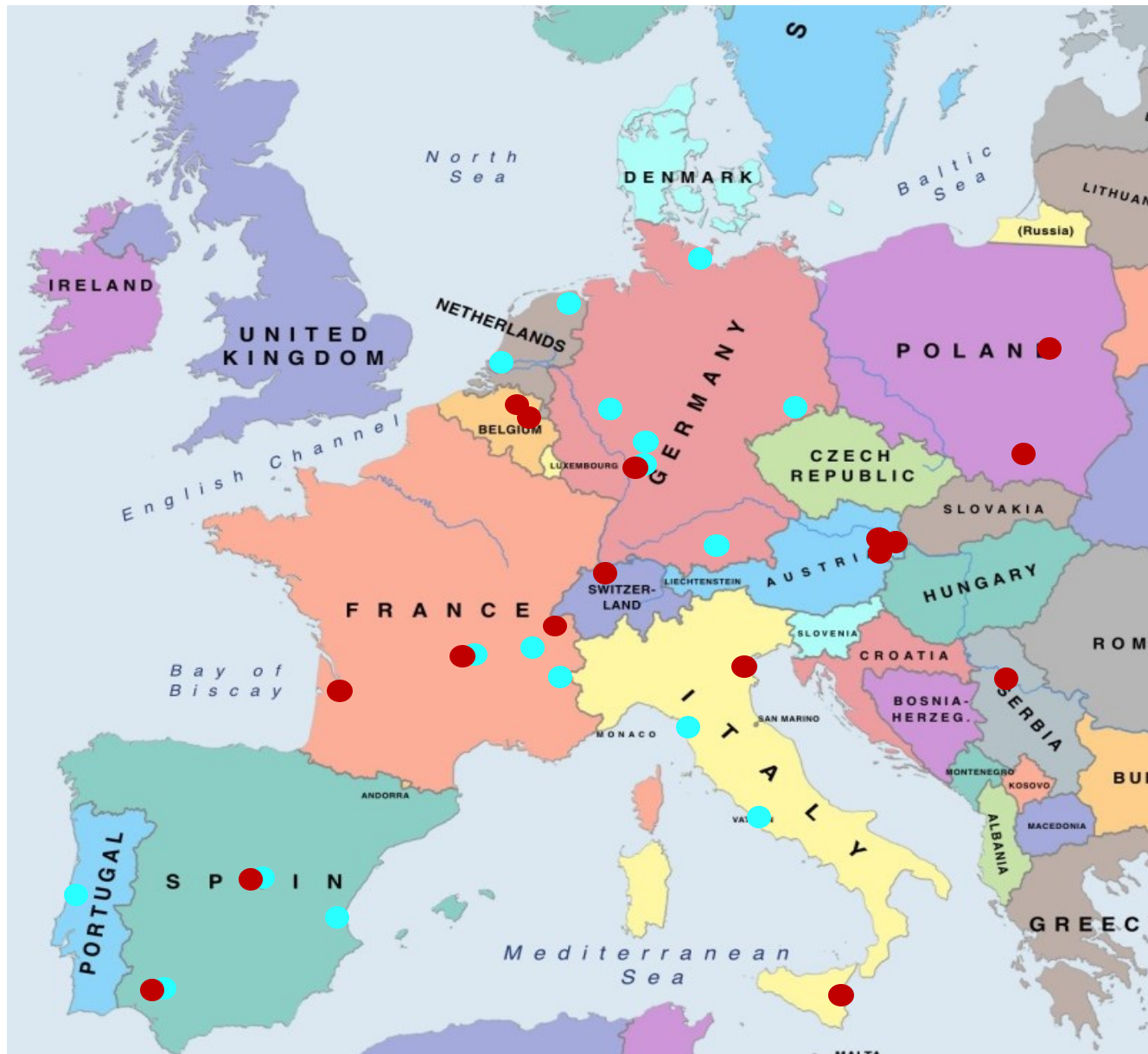
- **Universidad de Sevilla, Spain**
- **University of Lübeck, Germany**
- **University of Siegen, Germany**

## MediNet Task 2

- **Austrian Institute of Technology, Austria**
- **Centre d'Etudes Nucleaires de Bordeaux-Gradignan, France**
- **SCK•CEN, Belgian Nuclear Research Centre**
- **Technische Universität Wien (TU Wien)**
- **Univ. Complutense, Madrid, Spain**
- **Universidad de Santiago, Spain**
- **Universidad de Sevilla, Spain**
- **Universiteit Hasselt - Campus Diepenbeek, Belgium**

● Task 1 sites

● Task 2 sites



## EU Contractual Obligations: 4 Milestones and 4 Deliverables

Work Package NA5 - MEDINET	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
MS5.1: Kickoff-Meeting																	
MS5.2: Website																	
D5.1: Specific need and proposed solutions of nuclear tools for medicine																	
D5.2: Clarifying/adapting nuclear concepts to the medical field																	
MS5.3: Mid-term meeting																	
D5.3: Nuclear physics instrumentation for medicine																	
MS5.4: Final meeting																	
D5.4: Use of nuclear tools to support biological effectiveness assessment in ion-beam therapy																	

October 2019

Final Meeting





## Milestones

- **MS5.1: Kickoff-Meeting: due month 3, year 1**
  - status: milestone was achieved in time ✓
  - meeting was held in Munich on May 18/19, 2016
  
- **MS5.2: Website: due month 6, year 1**
  - status: milestone was achieved in time ✓
  - website went online on June 29, 2016: [medinet.medaustron.at/](http://medinet.medaustron.at/)
  
- **MS5.3: Midterm Meeting: due month 27, year 3**
  - held in Belgrade, March 12-14, 2018 ✓
  
- **MS5.4: Final Meeting: due month 48, year 4**  
**Now !**



## Deliverables

### D5.1: Report:

“Specific need and proposed solutions of nuclear tools for medicine”

report submitted on time to EU: 30.11.2016:

[https://medinet.medaustron.at/index.php/Network\\_documents#MediNet\\_reports](https://medinet.medaustron.at/index.php/Network_documents#MediNet_reports)  
accepted by EU



### D5.2: Report: “Clarifying and adapting nuclear concepts to the medical field”

report submitted on time to EU: 24.11.2017

[https://medinet.medaustron.at/index.php/Network\\_documents#MediNet\\_reports](https://medinet.medaustron.at/index.php/Network_documents#MediNet_reports)  
accepted by EU



### D5.3: Report: “Nuclear physics instrumentation for Medicine”

presentation of Task 1 activities

report submitted on time to EU: 28.02.2019

[https://medinet.medaustron.at/index.php/Network\\_documents#MediNet\\_reports](https://medinet.medaustron.at/index.php/Network_documents#MediNet_reports)  
accepted by EU



## Ongoing work:

**D5.4:** to be submitted to EU latest November 30, 2019 (month 45)

(= submission to internal review committee: Nov. 08, 2019)

**”Use of nuclear physics tools to support biological effectiveness assessment in ion-beam therapy”**

→ presentation of Task 2 activities

- MediNet Task2 for the preparation of MediNet Deliverable 5.4 (Darmstadt, May 20-22, 2019)



Scientific publication in conclusion of MediNet Task2 activities to be published in a peer review scientific journal. Michael Scholz is coordinating the work

- Promoting the excellence
- The participation is voluntary
- Focusing on Monte Carlo simulations, Treatment Planning Models, and Microdosimetry
- Open access publication (as per EU requirements).

## ENSAR2 activities affecting NA05 (MediNet):

- **Project Coordination Committee meeting:** Caen, October 11/12, 2017  
**General Assembly meeting**  
→ participation by Giulio Magrin, Peter Thirolf
- **Mid-Term Review meeting:** EC, Brussels, January 30, 2018  
→ participation by Giulio Magrin, Peter Thirolf
- **ENSAR2 Town Meeting:** EC, Brussels, April 17/18, 2018  
→ participation by Giulio Magrin, Peter Thirolf
- **Project Coordination Committee meeting:** Caen, April 17, 2019  
→ participation by Giulio Magrin, Peter Thirolf
- **Project Coordination Committee meeting:** Paris, November 18, 2019  
→ participation by Giulio Magrin, Peter Thirolf
- **NUSPRASEN Workshop on Applications:** Helsinki, Nov. 25-27, 2019  
→ Medical Session organized by MediNet coordinators  
→ participation of MediNet members encouraged

- Workshop on In-Vivo Dosimetry (May 19/20, 2016, Munich)
- Discussion Seminar: (Jan. 30-31, 2017, Legnaro) “Challenges and prospective of the assessment of radiation quality in ion-beam therapy”
- IV International GEANT4 School (Oct. 23-28, 2016, Belgrade)
- V International GEANT4 School (Oct. 23-27, 2017, Catania)
- XV Seminar on Software for Nuclear, Subnuclear and Applied Physics, (May 27-June 1, 2018, Alghero)
- International Biophysics Collaboration Meeting, May 20–22, 2019, GSI-FAIR/Darmstadt
- Workshop on “Microdosimetry in ion-beam therapy for beginners“ Oct. 9-10, 2019, MedAustron/Wiener Neustadt)
- Young Investigators Workshop on Photon Detection for Medical Applications (Dec. 2-3, 2019, Siegen/Germany)



## i) MediNet-talks at external conferences:

- ENLIGHT annual meeting (Utrecht, 15-17 Sept., 2016):

“MediNet, the detector-oriented network of ENSAR2 for ion beam therapy”

- 1st ESTRO Physics Workshop: “Micro- and nanodosimetry for radiotherapy” (Glasgow 17-18 Nov. 2017):

“ Experimental microdosimetry in MediNet”

- ENLIGHT annual meeting (Caen, 1-3 July, 2019):

“The MediNet Network ”

## ii) MediNet contributions to external publications:

- ENLIGHT magazine “Highlights”, Issue December 2016: MediNet general goals and focus on assessment of the radiation quality in ion-beam therapy.

[http://enlight.web.cern.ch/sites/enlight.web.cern.ch/files/media/downloads/enlight\\_highlights\\_2016-web-spreads.pdf](http://enlight.web.cern.ch/sites/enlight.web.cern.ch/files/media/downloads/enlight_highlights_2016-web-spreads.pdf)

- IEEE-Transactions on Radiation and Plasma Medical Sciences: M.G. Bisogni, G. Magrin and P. Thiolf are preparing a Special Issue on Particle Therapy as Guest Editors.



## New tools for networking:

- **MediNet on Twitter:** @MediNet\_ENSAR2  
→ #MediNet



- **advertise events** (MediNet meetings and related training opportunities for the benefit of MediNet members and others, complementing the website)
- **advertise PhD, postdoc and fellowship positions:**  
stay up to date with open positions in MediNet  
MediNet network will benefit from more applications
- **promote MediNet activities** and collaborations:  
e.g. publicly show MediNet networking activities (pictures of MediNet meetings, MediNet members giving seminars in other MediNet institutions and pictures of experimental campaigns related to MediNet)
- **increase the visibility** of MediNet members

- **‘Slack’ workspace:** forum/chat for MediNet members



messaging app: allows to chat, upload and share files

new members can see the entire chat history: easy catch up for new members

→ informal forum for discussions and questions



# 'Cavalieri dell'Ordine della Stella d'Italia'

2 June, 2019



Ivan Petrovic and Aleksandra Ristic Fira were honored with the decoration of 'Cavaliere dell'Ordine della Stella d'Italia' (Knights of the Italian Star). The decoration was awarded for their merits gained during more than 20 years of activity in the field of scientific research, promotion of links, and collaboration and friendly relations with the Italian academic and scientific community. The activities of Ivan and Aleksandra within MediNet and ENSAR 2, in particular in collaboration with the INFN, Laboratori del Sud in Catania, are part of their prolific contributions to the Italian scientific community. **'We are very honored and happy'** said Aleksandra and Ivan after receiving the Italian star.

# NUSPRASEN Workshop on Nuclear Science Applications

Helsinki, 25-27 November 2019

<https://indico.gsi.de/event/9181/>

## Abstract submission deadline: October 14

Monday morning to Wednesday noon – no workshop fee

[indico.gsi.de/event/9181](https://indico.gsi.de/event/9181)      [nusprasen\\_workshop@helsinki.fi](mailto:nusprasen_workshop@helsinki.fi)

### **Invited speakers**

#### **Applications in Medicine**

Marco Durante / Ulli Koester / Pablo Cirrone / Marco Schippers

#### **Applications in Heritage Science**

Luca Pezzati / Bum Soo Han

#### **Applications in Nuclear Safety, Security and Safeguards**

Kai Vetter / Isabella Maschio

#### **Collaboration with and the Needs of Industry**

Shavkat Akhmadaliev / Olli Salmi



**N**uclear **S**tructure **P**hysics, **R**eactions, **A**strophysics and **S**uperheavy **E**lements **N**etwork



ENSAR2 has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 654002.