IFIGENEIA

Innovative Facility for Isotope GENeration with Efficient Ion Accelerator

Jožef Stefan Instititute

Robert Blatnik & Primož Pelicon

Kick-off meeting
3-4 March 2025
Thessaloniki, Greece

This project has received funding from the European Union's Horizon Europe Framework Programme for Research and Innovation under grant agreement no 101186921.

Jožef Stefan Institute

The leading Slovenian scientific research institute.

Important European Key enabling technologies (KET) centre.

European Research Ranking

Jožef Stefan (1835-1893)

Stefan-Boltzmann law of black-body radiation

The Mission

Creation, spread and transfer of knowledge in the fields of natural, life and engineering sciences to the benefit of the society.

IFIGENEIA

Jožef Stefan Institute

Main areas of research

Electronics and Information Technologies

- Automation, biocybernetics and robotics
- Systems and control
- Artificial intelligence
- Open systems and networks
- Communication systems
- Computer systems
- Knowledge technologies
- Intelligent systems

8 depart-ments

Physics, nuclear engineering and energy

- Theoretical physics
- **Low and medium energy physics**
- Thin films and surfaces
- Surface technology
- Solid State Physics
- Gas electronics
- Complex matter
- Reactor physics
- Experimental particle physics
- Reactor technology

10 depart-ments

Chemistry, biochemistry, materials and environment

- Biochemistry, molecular and structural biology
- Molecular and Biomedical Sciences
- Biotechnology
- Inorganic chemistry and technology
- Physical and organic chemistry
- Electronic ceramics
- Nanostructured materials
- Synthesis of materials
- Advanced materials
- Environmental sciences

10 depart-ments

Knowledge transfer @ Jožef Stefan Institute

Office for Substantive Project Support, Technology Transfer and Innovation
Office for Industrial Liaison
Office for Project Informatics, Organization of Thematic Events and Conferences

Innovation support activities

- **Promotion, Education and Events**
- **National and EU projects**
- **IP Protection & Commercialization**
- **Spin-Outing**
- **Contract and Collaborative Relations**

Core Business

Preparation, protection, marketing of intellectual property
Establishing spinout companies
Company Visits (themes for R&D collaboration)
Support application to national and EU Calls
EU project partner searches for joining/building consortia

Results

Patent applications filed
Secret know how registered
Research and Development agreements concluded
License agreements concluded
Spin-out companies created
Projects granted (our own and those of researchers)

Jožef Stefan Institute

IFIGENEIA

Jožef Stefan Institute

F2 / Department of Low and Medium Energy Physics

- Atomic and nuclear physics.
- Various applications, including radiological monitoring of the environment, material research, fusion, biology, energy storage, medicine, pharmacology, environment and archaeometry.
- Execute the research at extensive set of own experimental instrumentation, consisting of ion accelerator and beamlines, dedicated detectors of ionizing radiation, experimental setups for atomic and nuclear physics, as well as calibrated radiation fields.
- Granted the access to large scientific installations worldwide, including accelerators, synchrotrons, free-electron lasers and fusion reactors.
- The Department runs Radiological mobile unit ELME, a specialized unit of Civil Protection.

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Laboratories

Laboratory for applied X-ray spectroscopy

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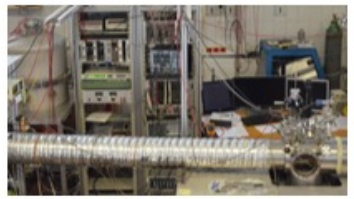

Laboratory for electron spectrometry

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Laboratory for fusion research

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Mössbauer spectroscopy laboratory

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LMR - Laboratory for radioactivity measurements

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NDS - Laboratory for Dosimetry Standards

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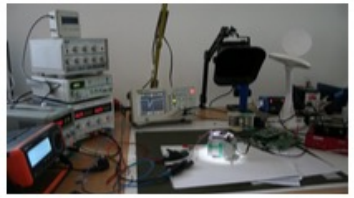
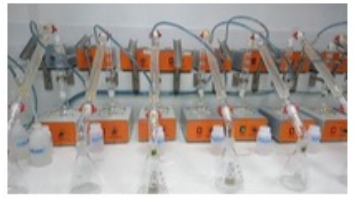
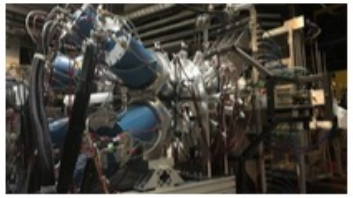


SNAIL – Slovenian Nuclear Instrumentation Laboratory



LSC – Laboratory for Liquid Scintillation Spectrometry



Nuclear Astrophysics Laboratory

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TLD - Laboratory for thermoluminescent dosimetry

XRF - Laboratory for X-ray fluorescence spectrometry

ELME - Ecological Laboratory with a Mobile Unit

Accelerator with beamlines

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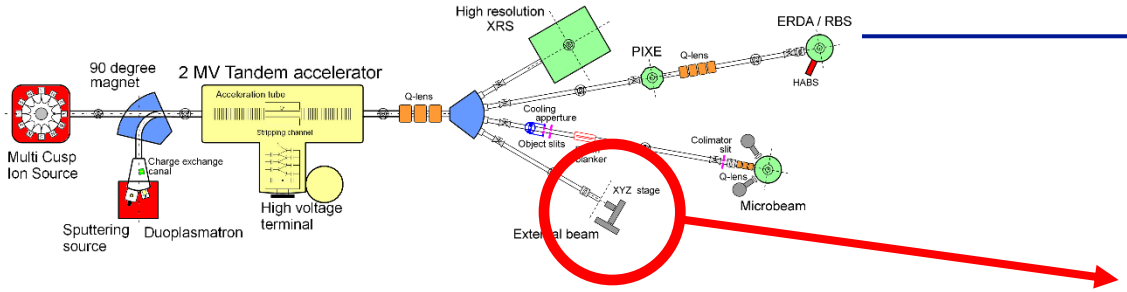
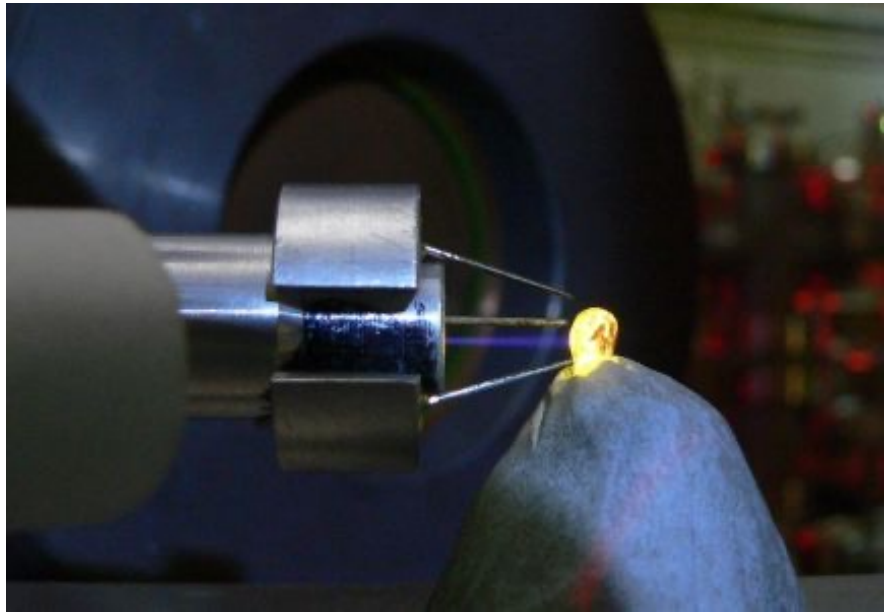
IFIGENEIA: In-air beamline (first beamline from right- at the angle of -30°)

External beam (-30°)





3 MeV proton beam directed from vacuum into air through ultra-thin foil (200 nm Si_3N_4), violet fluorescence

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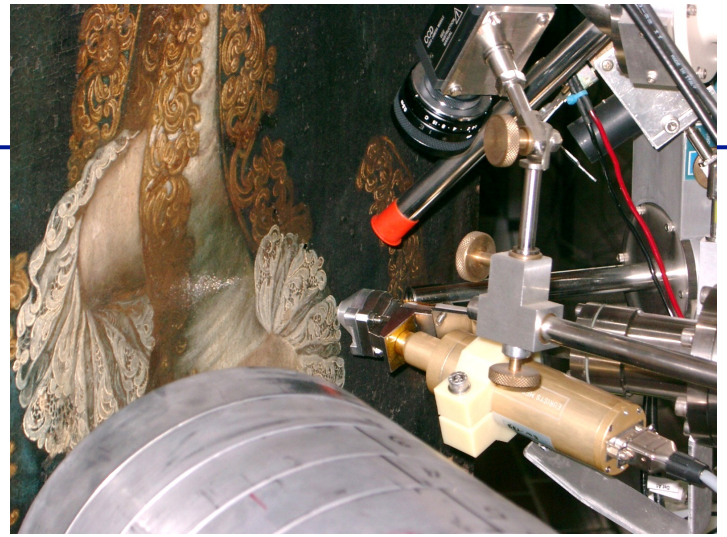
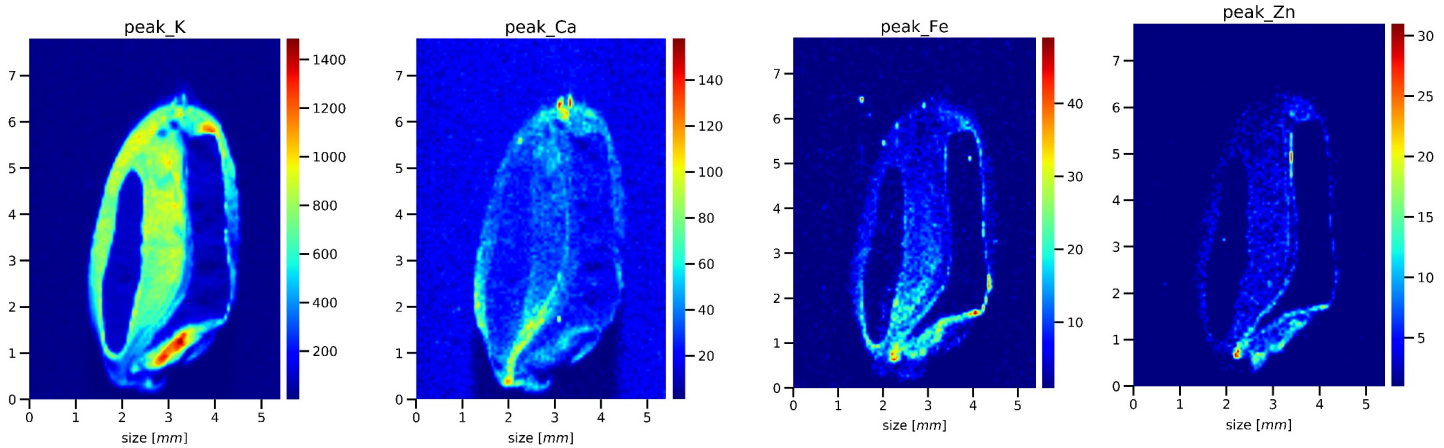
Applications:

archaeometry, conservation



biology, food research
(i.e. quantitative elemental imaging of wheat grain)



environment:
i.e. detection of “forever chemicals”: Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) in water

Main involvement in IFIGENEIA

Leading:

- Communication and Dissemination Manager, CDM (Urška Mrgole)
- WP2: Education, Dissemination, Inclusion and Diversity
- T2.1 Communication and dissemination activities and planning

Participation:

- T1.1 Project coordination & financial management
- T1.4 Capacity Building
- T1.5 Data management

Main involvement in IFIGENEIA

Participation:

WP2: Education, Dissemination, Inclusion and Diversity

- T2.2 Skills training and Trainers' training
- T2.3 Secondments and good practices exchange

WP3: LINAC design dedicated to radioisotope production and other societal applications

- T3.1 LINAC/RFQ design and beam dynamics studies

WP5: Business plan for end users: From science to business including spinoffs

- T5.1 Management of Key Exploitable Results (KERs)
- T5.2 Development of Business Plan(s) and a Strategic Investment Plan for Seeking Financing beyond the Project
- T5.3 Basic Sustainability for the Excellence Hubs

WP6: Mentorship and Capacity Building

- T6.1 Accelerator School

IFIGENEIA staff

WP3

Prof. Dr. Primož Pelicon

Andrej Košiček

WP5

mag. Robert Blatnik

WP2

Urška Mrgole

Marjeta Trobec, MSc