Preliminary WP breakdown

1. System specifications and selection of technolog
1.1 Requirements review
1.2 Physics case/Whitebook
1.3 ISRS cost and timeline evaluation

2. Beam dynamics
2.1 Design specifications
2.2 Selection of machine layouts and lattices
2.3 Ring simulations refinement
2.4 Injection/extraction simulations refinement
2.5 Error calculations and tolerances

3. CCT magnets and cryostats
3.1 Straight nested magnet prototype
3.1.1 Modelling and detail drawings
3.1.2 Components and construction
3.1.3 Cold Test
3.2 Curved nested magnet prototype
3.1.1 Modelling and detail drawings
3.1.2 Components and construction
3.1.3 Cold Test
3.3 Curved cryostat
3.1.1 Modelling and detail drawings
3.1.2 Components and construction
3.1.3 Cold Test
3.4 Mounting magnets in curved cryostat and test
3.4.1 Cryostating
3.4.2 Test of magnets in cryostats

4. Injection/extraction
4.1.1 Septum magnet concept
4.1.2 Septum magnet prototype
4.2.1 Fast Kicker design concept
4.2.2 Fast Kicker prototype

6. Magnet test bench
6.1 Test bench specifications
6.2 Design of test bench hardware
6.3 Test bench software
6.4 Procurement and commissioning
6.5 Magnet testing

7. HIE-ISOLDE developments
7.1 Multiharmonic buncher
7.1.1 MHB EM and beam dynamics design
7.1.2 MHB engineering design
7.1.3 MHB prototyping
7.1.4 MHB testing
7.2 Solid State Power Amplifier (SSPA)
7.2.1 SSPA design
7.2.2 SSPA prototyping
7.2.3 SSPA testing
7.3 Charge breeder study
7.4 Re-buncher study

8. Detector systems
8.1 Beam detectors
8.1.1 Design study
8.1.2 Prototyping
8.1.3 Test
8.2 Focal plane detectors
8.2.1 Design study
8.2.2 Prototyping
8.2.3 Test

ISRS INTERNATIONAL COLLABORATION

Inst. de Física, UNAM, ***México.***
Univ. Huelva, ***Spain.***
IJCLab-Univ. Paris-Sud, ***France.***
Dpt. of Physics, Univ. Liverpool, ***UK****.*
Wigner Research Centre for Physics, Budapest, ***Hungary****.*
*TTI Norte, Santander****, Spain.***
Inst. de Estructura de la Materia, CSIC, Madrid, ***Spain****.*
ESS-BILBAO, Bilbao, ***Spain.***

CERN, Geneva, **Switzerland.**
Univ. Surrey, **UK.**
Lund Univ., **Sweden.**
Univ. Edinburgh, **UK.**
LNL INFN, **Italy**
Uppsala Univ., ***Sweden.***
Aarhus Univ., ***Denmark.***
Chalmers Univ. of Technology, ***Sweden.***
ACS, Orsay, ***France.***

CENGB, Gradignan, ***France.***
Univ. York, ***UK.***
Univ. of West Scotland, ***UK.***
ICMUV-Univ. de Valencia, ***Spain.***
Cockcroft Institute, ***UK.***
Astroparticule et Cosmologie- Univ. Paris Diderot, ***France.***
Univ. Jyvaskyla, ***Finland.***
IMIS Univ. Riyadh, ***Saudi Arabia.***
IFIN-HH, Bucharest, ***Romania.***
*Politecnico di Milano-DEIB & INFN****, Italy.***

MSCA Doctoral Networks 2021

Reference HORIZON-MSCA-2021-DN-01

Deadline 16 Nov 2021

MSCA Doctoral Networks will implement doctoral programmes, by partnerships of universities, research institutions and research infrastructures, businesses including SMEs, and other socio-economic actors from different countries across Europe and beyond.

MSCA Doctoral Networks are indeed open to the participation of organisations from third countries, in view of fostering strategic international partnerships for the training and exchange of researchers.

Follow the link to learn more about MSCA Doctoral Networks.

These doctoral programmes will respond to well-identified needs in various R&I areas, expose the researchers to the academic and non-academic sectors, and offer training in research-related, as well as transferable skills and competences relevant for innovation and long-term employability (e.g. entrepreneurship, commercialisation of results, Intellectual Property Rights, communication).

Proposals for doctoral networks can reflect existing or planned research partnerships among the participating organisations.

Type of action		Type of MGA
HORIZON-RIA HORIZON Research and Innovation Actions		**HORIZON Action Grant Budget-Based [HORIZON-AG]**
Deadline model	Planned opening date	Deadline date
single-stage	**19 January 2022**	**20 April 2022 17:00:00 Brussels time**

Destination

Next generation of scientific instrumentation, tools and methods and advanced digital solutions (INFRATECH)

Scientific communities cannot adequately respond to current research challenges without having access to state-of-the-art scientific instruments and tools. Their constant adaptation, upgrading and innovation, as the underlying technologies develop at a very rapid pace, is critical for providing the optimal conditions for scientific advancements and discoveries in Europe.

The aim of this destination is the development of ground-breaking RI technologies, including scientific instruments, tools, methods, and advanced digital solutions, to enable new discoveries and keep Europe's RIs at the highest level of excellence in science, while paving the way to innovative solutions to societal challenges and new industrial applications, products and services. New instruments and tools (such as advanced sensors, imaging devices, light source detectors, high-tech developments for accelerators, robots/automated solutions) and advanced digital solutions (e.g. digital twins, data analytics and AI tools, etc.) for RI upgrade, will enable solutions to be found even for the most demanding scientific and societal challenges.

Proposals for topics under this destination should set out a credible pathway to contributing to one or several of the following impacts:

- Enhanced global competitiveness and technological excellence of Europe in an extremely fast-moving environment through investments into the development, of forward-looking technical instruments and tools for European RIs.
- Enhanced competitiveness of European industry through co-development with industrial actors of advanced RI technologies and technology transfer;
- Opening up of new areas of research and development of new industrial applications/products;
- Development of skills of RI staff aligned with the advancements of the RI technologies;
- Transdisciplinarity, cross-fertilisation and a wider sharing of knowledge and technologies between academia and industry;
- Wider use of AI in research and enhanced data-based research across Europe.