

# INFN always strongly committed on R&D for future projects

## • SC magnets



**Correctors – INFN-Mi** (manufactured by Saes Rial Vacuum)  
**D2 – INFN-Ge** (manufactured by ASG Superconductors)



**HF Nb3Sn Dipole development for FCChh – INFN-Ge** (EuroCircol)  
ASG Superconductors windings + INFN-LASA assembly by 2024



**Falcon2D** → Nb3Sn up to 16 T and HTS magnets towards 20 T  
INFN/CERN



## INFN is Active in EU Accelerator and Detector R&D Roadmaps → EU Strategy Priority

• **I.FAST EU project: Magnets, RF, additive manufacturing +++ training**  
Innovation Fostering in Accelerator Science and Technology

• **Muon Collider – INFN R&D since 2016 LEMMA (MICE since 2008)**

CERN Muon Collider WG as EU Strategy input document 2018

**MAP expertise was crucial to get started**

- production target and HF solenoid
- ionizing cooling → cell: NCRF/solenoid-HF
- accelerator fast ramping magnets
- MDI

proton driver  
as baseline:

INFN key player on MDI and Physics&Detector Fullsim

IMCC hosted by CERN launched by LDG July 2020

- SCRF
- HFM dipoles
- detector studies

EU RISE aMUSE and I.FAST MUoncolliderStrategy network

## • SC RF

TESLA → XFEL → ILC Eu-XFEL 3.9 GHz →



PIP II: 36 LB650 cavities 650 MHz challenging project  
INFN-FNAL - Project Planning Document (PPD) signed

• **Many other expertise: NCRF, beam dynamics...**

• **FCcEE – mostly MDI and detector R&D**

EU FCCIS FCC Innovation Study 2020-24

investigating collaboration on Magnets/RF

Hybrid crystal-based positron source

Design Study  
EU INFRA-DEV project  
submitted April 2022

**I.N.F.N. supports U.S. accelerator R&D program on future colliders and is ready to collaborate!**