

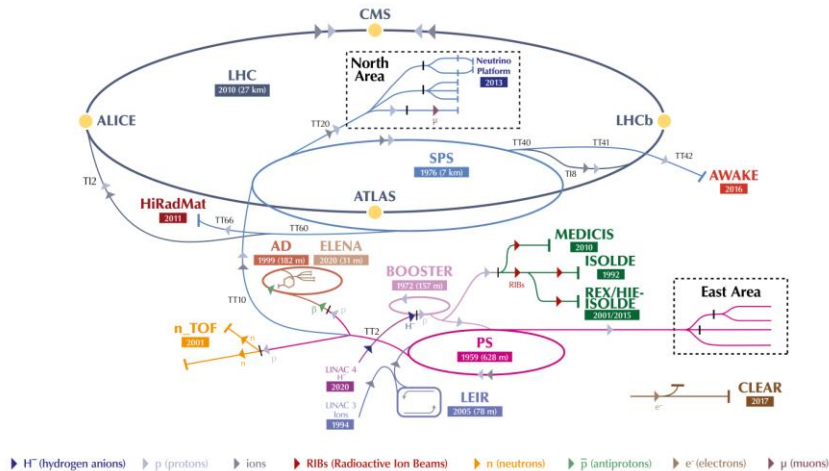
RF Quadrupole at Offline 2

SY-STI-RBS



ISOLDE (Isotope Separator On-Line DEvice)

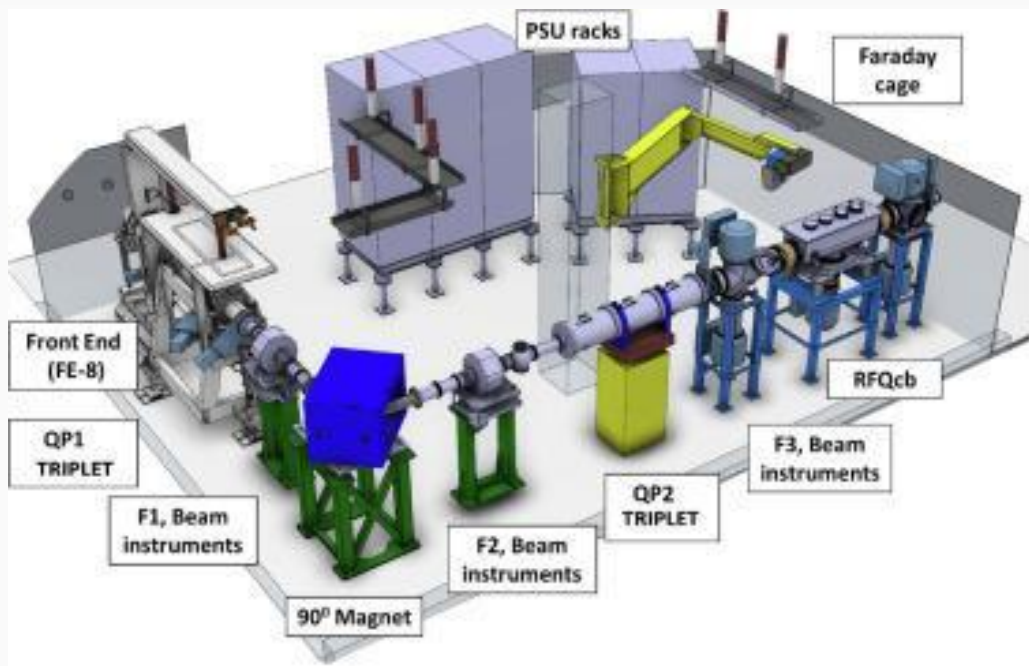
The CERN accelerator complex
Complexe des accélérateurs du CERN



LHC - Large Hadron Collider // SPS - Super Proton Synchrotron // PS - Proton Synchrotron // AD - Antiproton Decelerator // CLEAR - CERN Linear Electron Accelerator for Research // AWAKE - Advanced WAKEfield Experiment // ISOLDE - Isotope Separator OnLine // REX/HIE-ISOLDE - Radioactive Experiment/High Intensity and Energy ISOLDE // MEDICIS // LEIR - Low Energy Ion Ring // LINAC - LINear ACcelerator // n_TOF - Neutrons Time Of Flight // HiRadMat - High-Radiation to Materials // Neutrino Platform

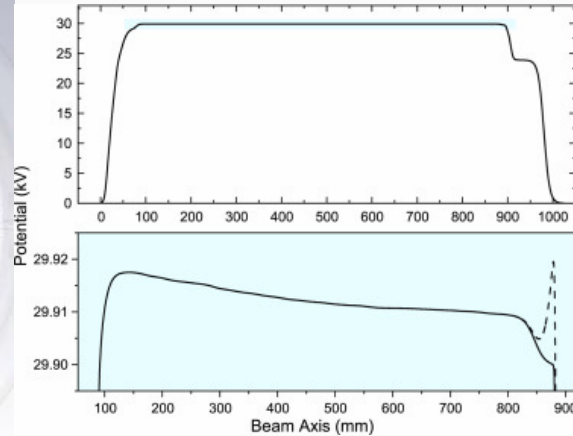
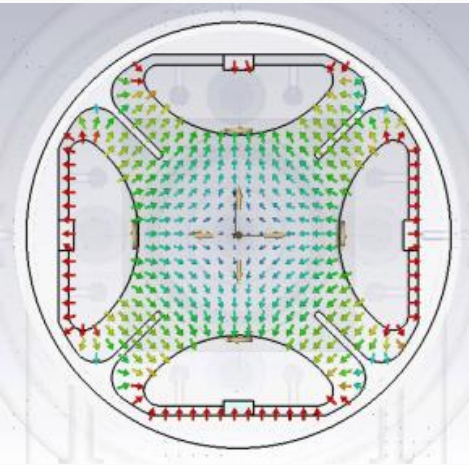
- Isotope mass separator on-line facility
- Takes proton beam from Proton Synchrotron Booster (PSB)
- Directs beam into targets to produce RIBs
- ISOLDE takes ~50% of CERN protons at 1.4GeV from the PSB

Offline 2



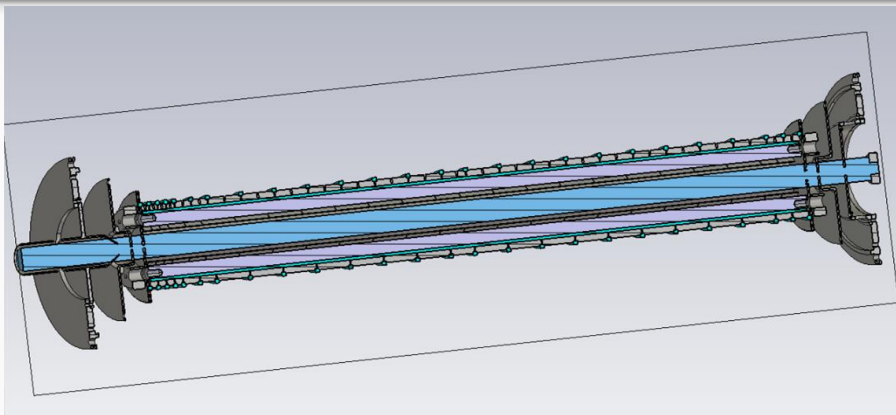
- Off-line ion testing facility for ISOLDE
- Equivalent testing environment specifically for Frontend and RFQcb to test targets and hardware
- Non-radioactive

RF Quadrupole Cooler and Buncher at Offline 2



- Copy of ISCOOL RFQcb
- Improves beam quality by reducing energy spread and transverse emittance
- At slightly lower voltage than Frontend and ions are decelerated as they move along the potential and buffer gas
- At the end there is a small potential well to trap ions or it can be switched to ground potential to extract in bunches
- Ions can be stored, cooled, released in the bunches

Goals and Challenges



Goals: Model and simulate the RFQ in SIMION with the buffer gas, work on Offline 2

Challenges: No experience with SIMION or lua, I find creating CAD type models very difficult, for some reason part of the controls melted

