

HIE-ISOLDE

Experimental requirements

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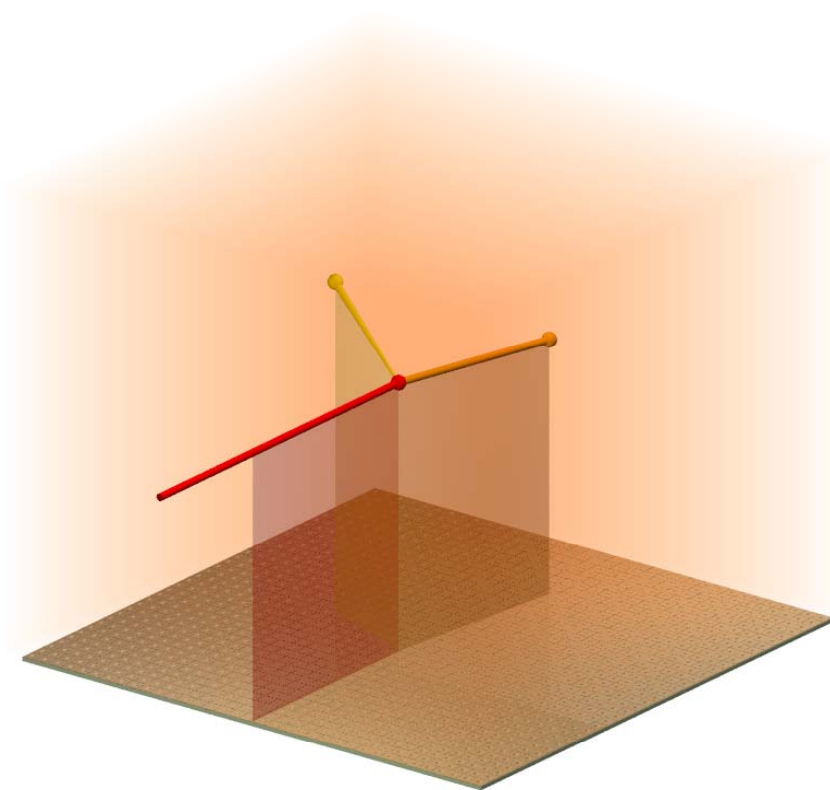
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Instrument: Active Target

**Time-projection chamber
with detection gas as target**

- Thick target
 - High efficiency
 - Tracking, identification
 - Spatial resolution
 - Low thresholds

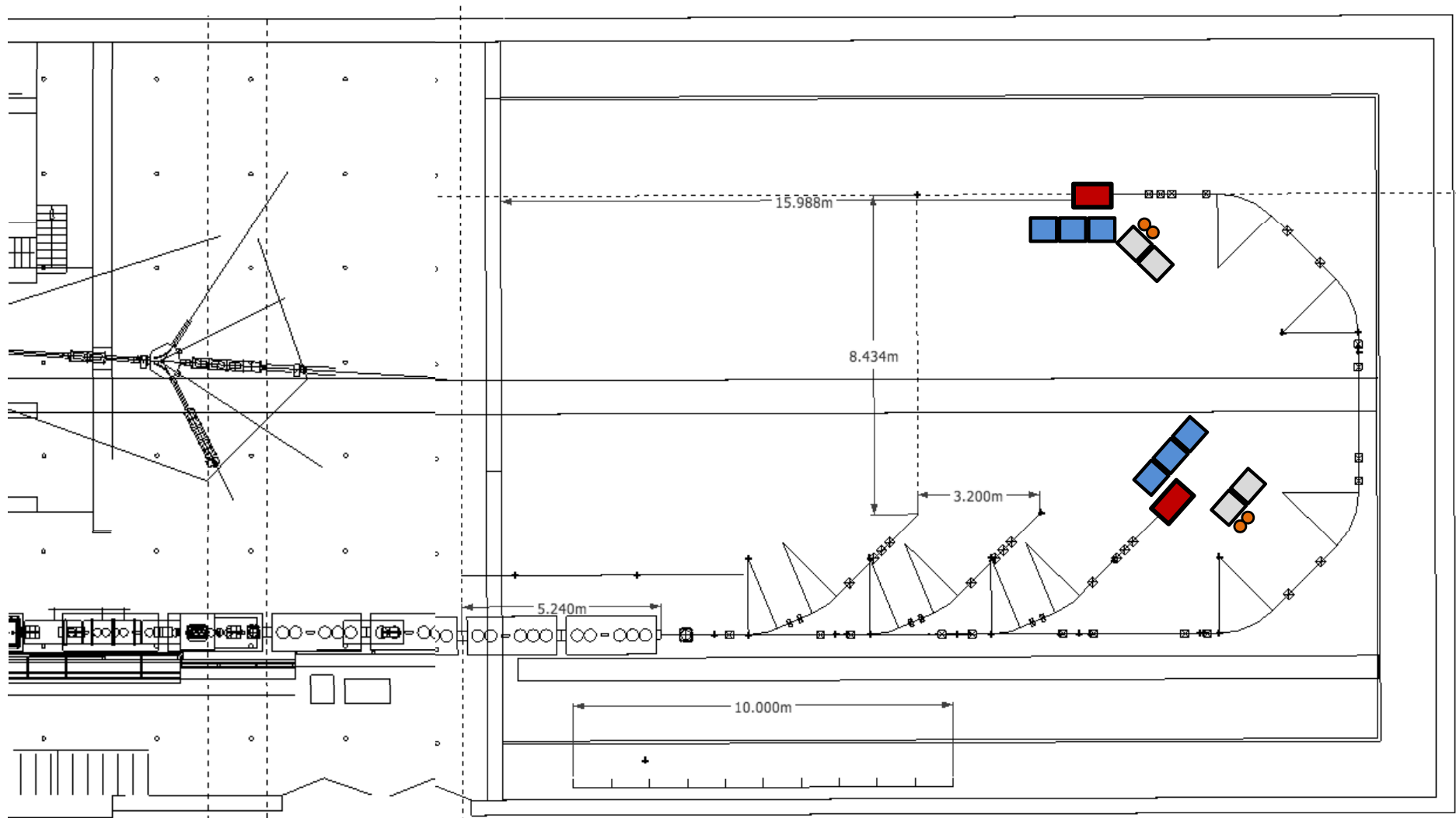
**Well-adapted for use
with the weakest RIBs**



Floor space



Floor space



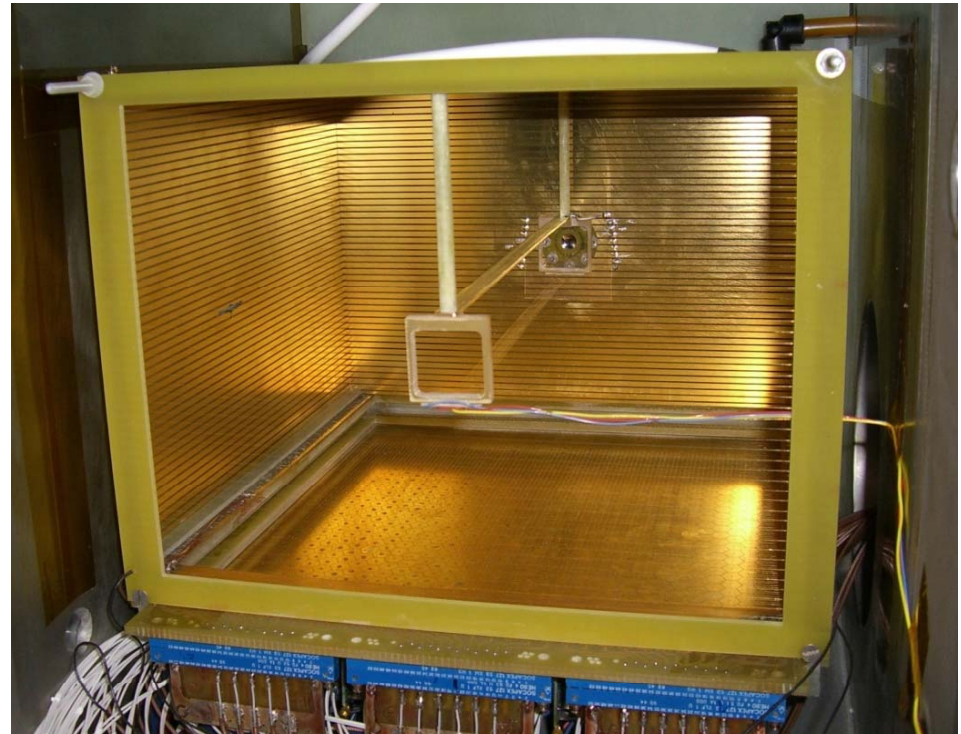
Beam requirements

Instantaneous rate is a limit

- Creation of ionisation charges
- Count rate

Actual limit $\approx 10^5$ - 10^6 pps inst.

$\Rightarrow < 10^3$ pps



- Spread the beam pulses as much as possible
- Keep contamination to a minimum
- Divergence < 10 mrad

- E resolution $< 1\%$
- Astrophysics
Energy < 0.7 MeV/nucleon

Other Lols

- **Time structure**

 - Long EBIS pulses (≈ 15 Lols)

 - 100 ns between LINAC pulses (HELIOS, GASPARD, spectrometer)

- **Optics**

 - Spot ≈ 3 mm or better

- **Purity**

 - better than 50% or event-by-event identification

- **Floor space**

 - Spectrometer

 - β -NMR in LINAC (0.2-1 MeV/nucleon)

- **Hazards**

 - Long-lived isotopes at beam dump (at least 8 Lols)