



# SEEIST layout

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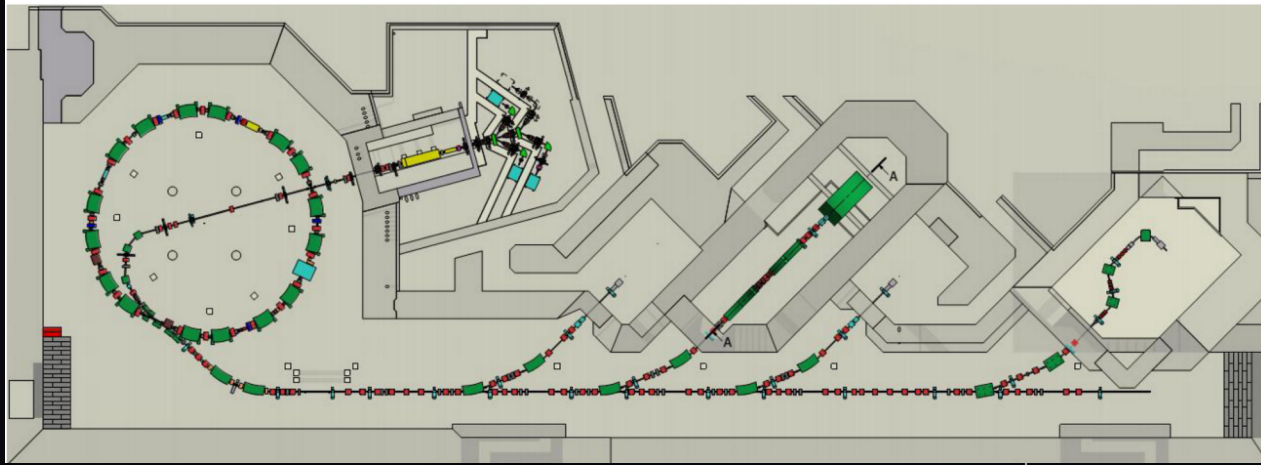
M. Sapinski  
GSI & SEEIST  
NIMMS meeting  
CERN, Jan 31, 2020

# Outline

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- Existing facilities
- Experimental area: SEEIST specific
- Options
- Constraints

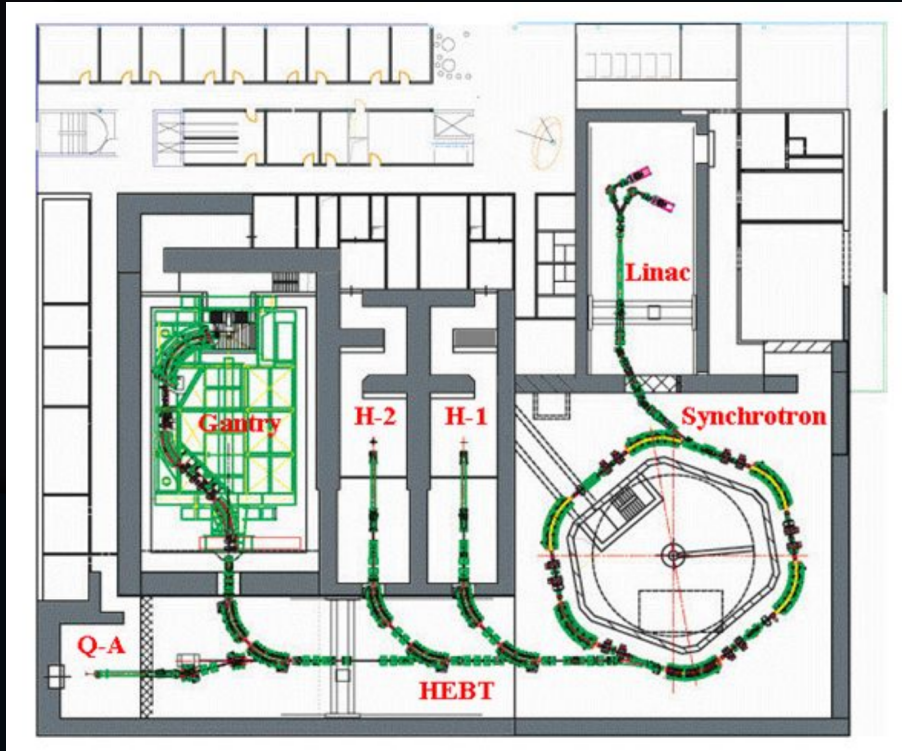
# Existing facilities: MedAustron



From: F. Osmic et al.,  
*Status of MedAustron –  
The Austrian Ion Therapy  
and Research Centre*,  
DOI: 10.18429/JACoW-  
IPAC2014-WEPRO081

- Generous space after synchrotron allows for separate-function quadrupoles (stepper, phase shifter and rotator).
- Building size ~130 meters (?), too big?

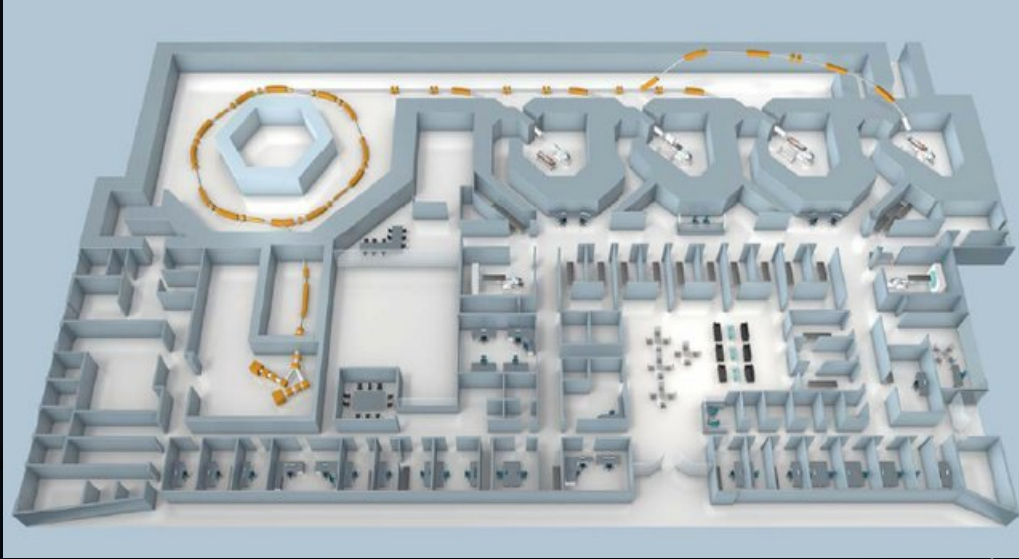
# Existing facilities: HIT (Heidelberg)



From: H.Eickhoff  
presentation in GSI

- Compact, but:
  - Rooms too small,
  - Problems for setting the beam to H-1 (not enough quadrupoles)
  - Controls based on large number of settings, no clean conceptual division into phase shifter, stepper...

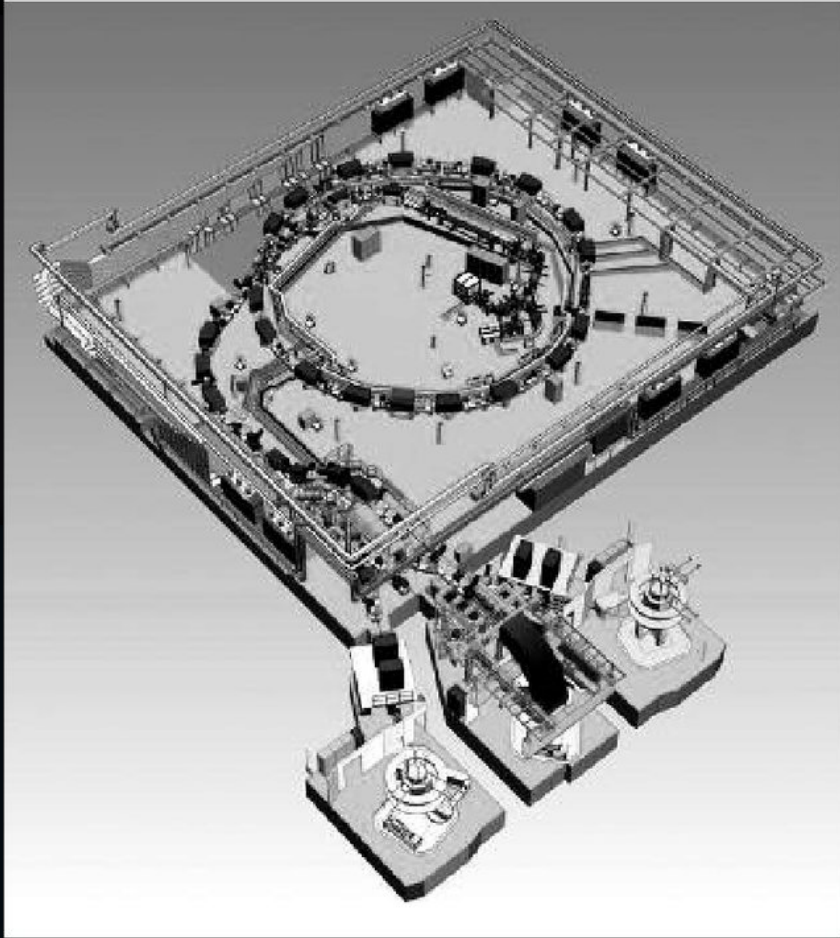
# Existing facilities: MIT (Marburg)



From: ResearchGate

- More space then in HIT

# Existing facilities: CNAO



From: R.Orecchia et al., *The National Center for Oncological Hadron Therapy: Status of the Project and Future Clinical use of the Facility*,  
DOI: 10.1177/030089160909500207

- The most compact of all.



# SEEIIST: we are different!

- “Green field” design – no need to save space
- But cut expenses (so not too big)
- Dedicated experimental beam lines:
  - More switching magnets, complexity!
  - Separation of treatment and experimental areas
- Higher intensities
  - more shielding? Better safety measures?
- Radioisotope production
  - separate facility, better shielding of linac section

# SEEIIST: first thoughts

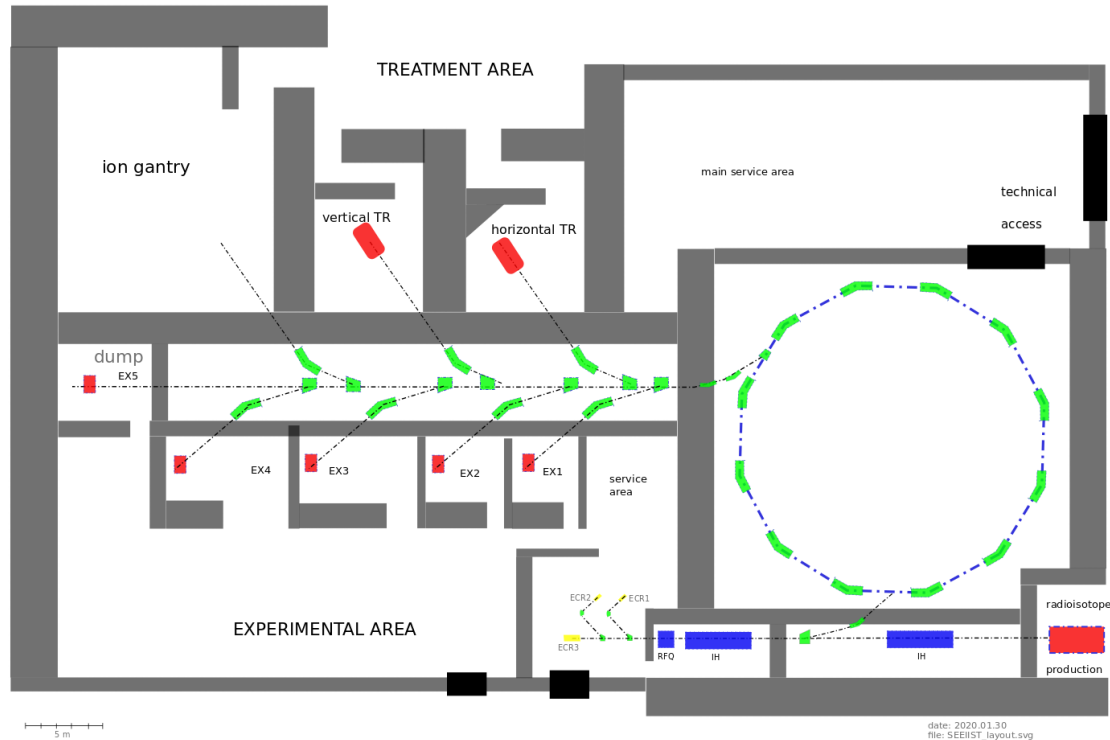


Ideas:

- HEBT beam lines at 1.8 m height for easy access/evacuation
- Linac on the opposite side then treatment area (disdvantage: access to synchrotron)
- Radiosotopes: separate building
- HEBT long enough for stepper-phase shifter quads
- only 3 treatment rooms (T. Haberer suggestion)



# SEEHST: first thoughts



Ideas:

- HEBT beam lines at 1.8 m height for easy access/evacuation
- Linac on the opposite side then treatment area (disdvantage: access to synchrotron)
- Radiosotopes: separate building
- HEBT long enough for stepper-phase shifter quads
- only 3 treatment rooms (T. Haberer suggestion)

# SEEIIST: other general ideas?



Better if ring  
exchanged to SC



Better separation of treatment area