Protection of North Area from High intensity (proton) beams during ion operation

- The problem:
  - Users need a primary ion beam in the North area
    - TAX fully open
    - no protons should be extracted in these conditions
  - Ions used to be sole user in the north hall
    - no other beam in the SPS
    - An interlock based on the field of magnets in the Linac-PSB transfer made sure only ions were going to the SPS.
  - Nowadays the SPS will also have high intensity proton beams (I>2E11) in the same supercycle for LHC and/or CNGS
  - Note: not a problem for fragmentation tests (not a primary beam)

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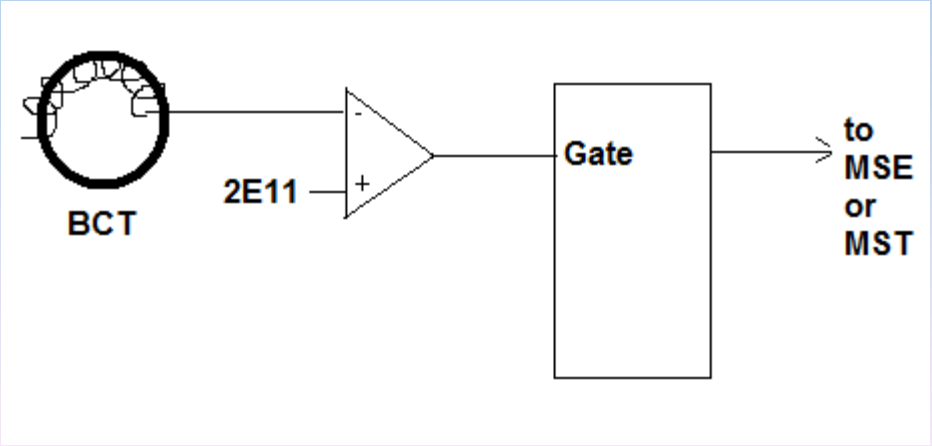
- Proposed solution
  - Define a "primary ion beam" mode where some extraction elements are inhibited during circulation of high intensity beams
  - High redundancy and reliability needed for personal safety!
  - 2 independent BCT chains respectively inhibit MSE and MST for I>2E11



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- Budget:
  - BI: 2 new BCTs, electronics, cabling
    - 400 kCHF
  - Cabling to BA2, interfacing access system
    - 200kCHF (tbc)
- Schedule:
  - Could be done in 2011 at the earliest
    - Supplier problems for BCT tores
- Note: other solution is to move NA61 to ECN3 (designed to handle primary beams)