

## Plans for 2021 – 22 experimental runs

- We do not expect that vacuum transport channel from Nuclotron to BM@N is fully equipped by Autumn 2021
- It is critical for operation with middle and heavy ion beams
- Accelerator team need time to put Booster – Nuclotron system into routine operation
- ▶ Plan to start with a new SRC run in November-December 2021 with carbon and deuteron beams (need deuterons for calibration), which could be provided by Nuclotron alone
- ▶ critical is a new detector to separate protons from pions in the proton arms to improve data quality
- ▶ if SRC setup is not ready by Autumn, switch to technical carbon run to test new BM@N detectors (vacuum carbon beam pipe and target, beam track Si, Forward Si, GEM, CSC, FHCAL, trigger detectors) → need two months to install and align beam pipe and detectors

We consider BM@N experimental run with a middle weight ion beam (Kr, Xe) in Spring 2022

- ▶ 1<sup>st</sup> stage of hybrid tracker (3 Fwd Si + 7 GEM)
- ▶ it is desirable to re-measure magnetic field map in an extended (X,Z) range but need power in building 205 to supply magnet
- ▶ in case of Booster-Nuclotron run in late spring 2021 with inner target, use this opportunity to test beam detectors at DSS



# SRC setup vs BM@N heavy ion setup



- ▶ Need improved detector setup, in particular, identification of arm protons
- ▶ SRC configuration is not consistent with the BMN setup for heavy ions:
  - beam pipe within BM@N magnet, Si, GEM central tracker are obstacles for SRC nuclear fragments
  - vacuum beam pipe from quadrupole should be dismantled to install H<sub>2</sub> target, beam and fragment detectors
  - DCH chambers are used for SRC, but are not suitable for heavy ions
- need a couple of months between SRC and heavy ion run to reconfigure and align BM@N detectors
- ▶ Accelerator team are interested first of all to run Booster + Nuclotron with heavy ions, but BM@N needs vacuum transport channel for heavy ion run
- ▶ If there is delay with Booster + Nuclotron operation → run only Nuclotron with laser ion source