

CoSY Machine Studies

COSY-GSI-Mini workshop

Nov. 18, 2016 | O. Boine Frankenheim, M. Bai

Proposed Beam Studies

- Injection/extraction beamline modeling/tuning
 - Model validation and simulations
 - MOGA based automatic tuning?
 - Contacts: FZJ: Christian, Yann, GSI: Sabrina
- Slow extraction studies
 - Beam based model validation
 - Spill structure
 - Beam distribution shaping
 - Contacts: FZJ: Hans, GSI: Stefan Sorge
- Optics measurement
 - To measure the global beta functions and phase advances
 - Contacts: FZJ: Christian, GSI: Vera
- COSY injection beam studies
 - Momentum aperture, rebucketing beam loss, working point scan, etc
 - Proposal submitted for upcoming CBAC meeting on Dec. 19-20
 - FZJ: Bernd L/Hans/Yury

Proposed Beam Studies

- Beam dynamics study with e-cooler
 - Beam losses at injection
 - Intensity related, or mismatch of beams' size?
 - Contacts: FZJ: Dieter/Stein, GSI: Steck/Stefan
 - Beam dynamics study with modulated electron beam
 - Contacts: FZJ: Seva/Mei, GSI: Steck/Oliver
 - Space charge effect/compensation
 - Contacts: FZJ: Seva/Mei, GSI: Will/Oliver

- Resonances and nonlinear dynamics (incoherent)
 - Resonance crossing: combine with tune scan?
 - Contacts: FZJ: Mei, GSI: Giuliano

- Instabilities and coherent effects
 - Impedance and damping measurements: BTF
 - Contacts: FZJ: Bernd/Hans, GSI: Vladimir/Rahul

COSY readiness

- COSY tunemeter

 - FZJ: Bernd Breitzkreutz, GSI: Rahul Singh

- Schottky pickup

 - The original transverse Schottky pickup was uninstalled some years ago. Can be reinstalled if space is found

 - Can also consider using current Stochastic cooling pickup, which means beam energy should be 1.5 GeV/c or higher

 - Contacts: FZJ: Hans/Rolf, GSI: Steck/Rahul

BTF: Hans/Rolf

- E-cooler

 - 2 MeV

 - some capabilities in modifying the e beam shape

 - so far, no capability in modulating e beam at MHz and higher

 - 100 KeV

 - limited capability in modifying the e beam transverse shape