

Summary of Dick Hseuh's Talk of 10/2/00

by S.Y. Zhang

1. Bellow shielding issues (Jie Wei)

- Impedance.
- Electron production (Mike, Slava).
- Engineering feasibility (H.C. Hseuh).

2. Reliability of the shielding

- Difficult to have enough finger contact force. Arcing, ...
- Deformation during transit, installation, and aging.

3. Limitations

- For 71+ special bellows, no space for shielding, only 24 standard bellows are under discussion.
- Radially limited by the correctors, presently air cooled, but 30 A current cannot go any higher.
- Longitudinally need more space for fingers to be welded and ride on.
- No space for flanged assembly (easy replacement).

4. Comparisons

- PS, PSB, AGS, AGSB, PSR, and SPS have no bellow shielding. PSR has flanged assembly, and considering to have the bellow shielded, e-p instability.
- LEP, LHC, PEP-II, KEKB shield bellows, but these machines have spaces, both radially and longitudinally, and hence different designs.
- RHIC bellow had deformation and shielding finger displacement failure. After repair, currently 200 out of 500 bellows left unshielded.
- ISIS bellows are about 2 inch larger than the ceramic chamber in radial direction. Hence they have better chance enforcing the shielding contact to prevent arcing.