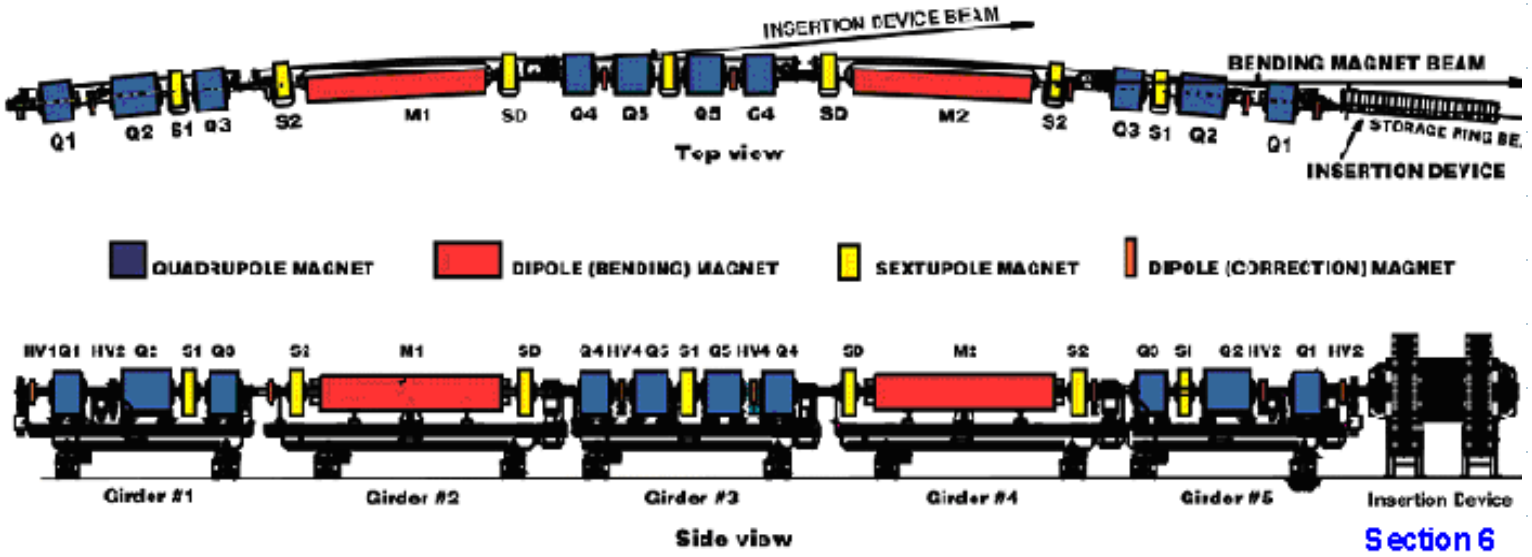
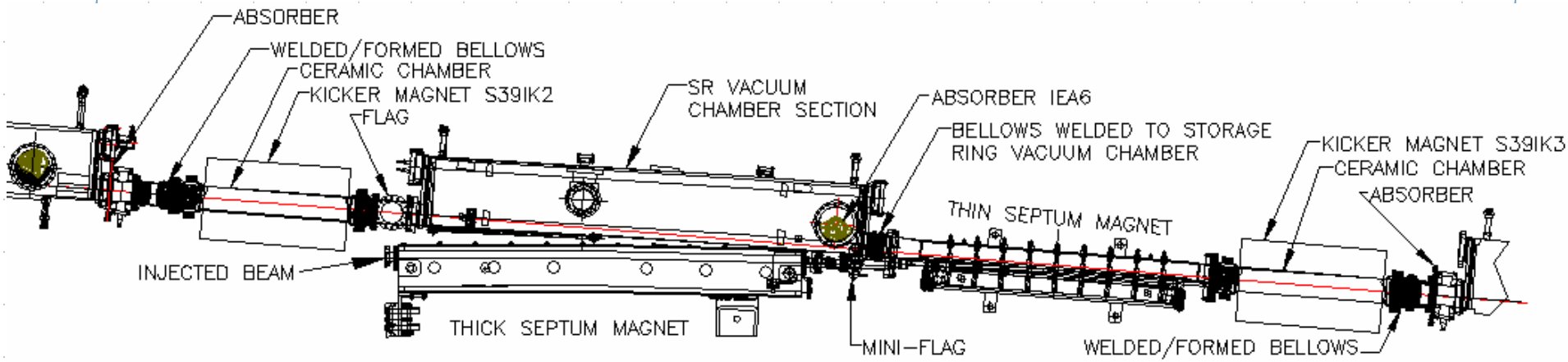
Storage Ring Injection Area Upgrade



A Typical Storage Ring Sector

Section 6 of Sector 39 (injection area) is used for beam injection from the Booster ring.

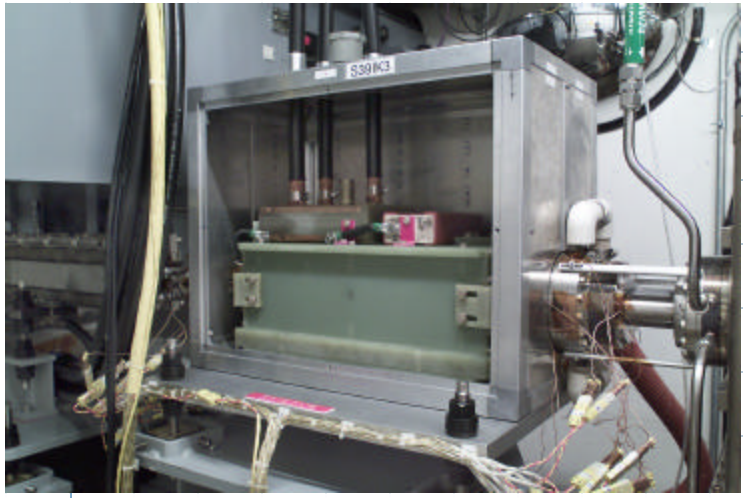
Injection Area Layout



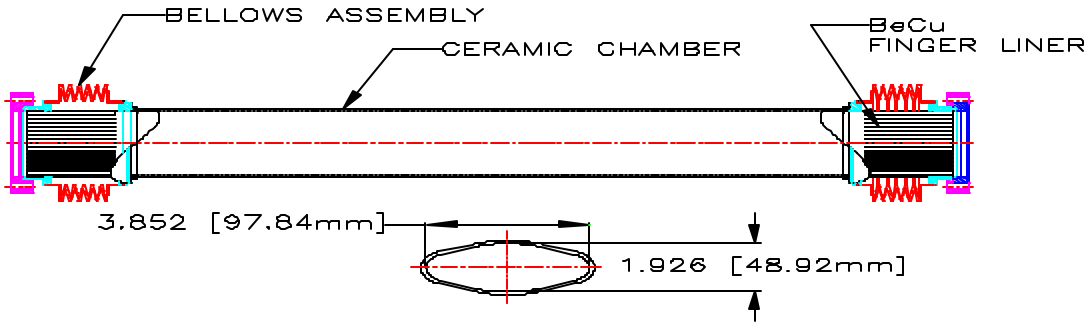
Major Goals for the Upgrade:

- Reduce heating of the flanges and bellows of the kicker ceramic chambers
- Improve RF continuity between the components
- Provide additional port for the diagnostics mini flag
- Spares and maintenance

Storage Ring Kicker Magnet

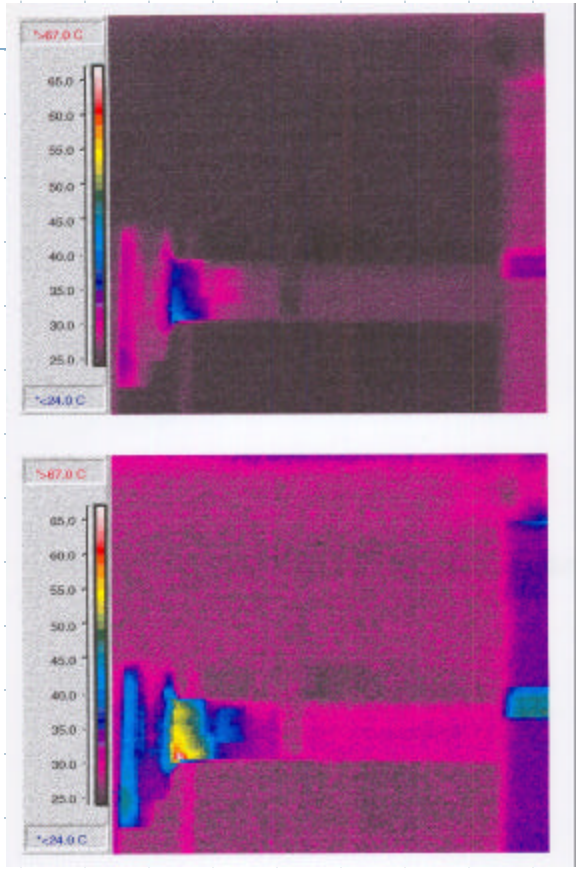


- Larger aperture
- Integral bellows assemblies
- Soft RF fingers
- Non-uniform conductive coating

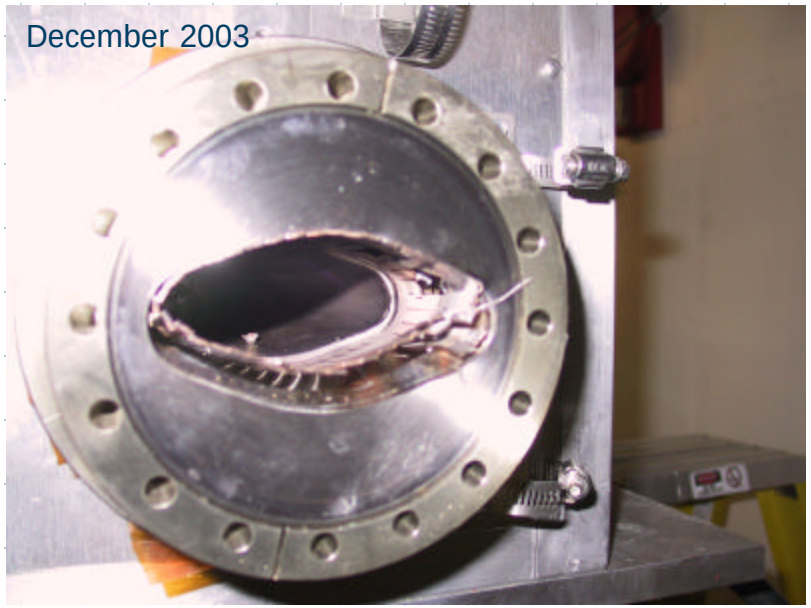


Old Ceramic Chamber with Bellows

RF and X-ray Heating of Kicker Bellows



RF Heating

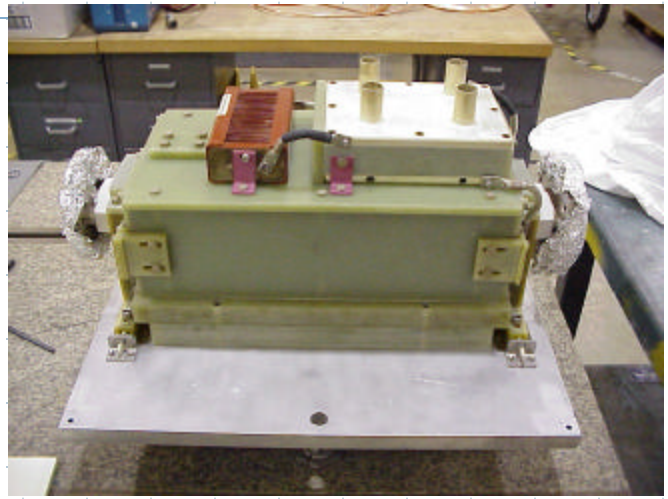


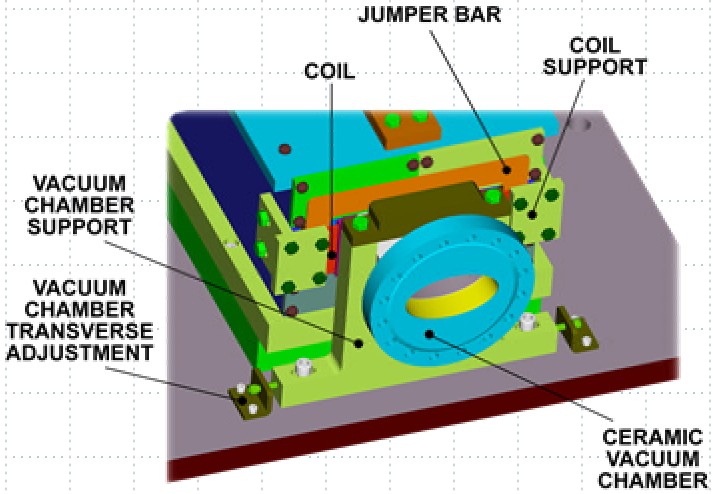
RF Fingers – IK2 Downstream

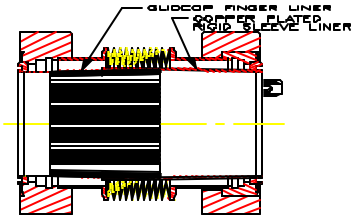
Mechanical Engineering Group
Accelerator Systems Division

Advanced Photon Source
Argonne National Laboratory

Upgraded Kicker Magnet

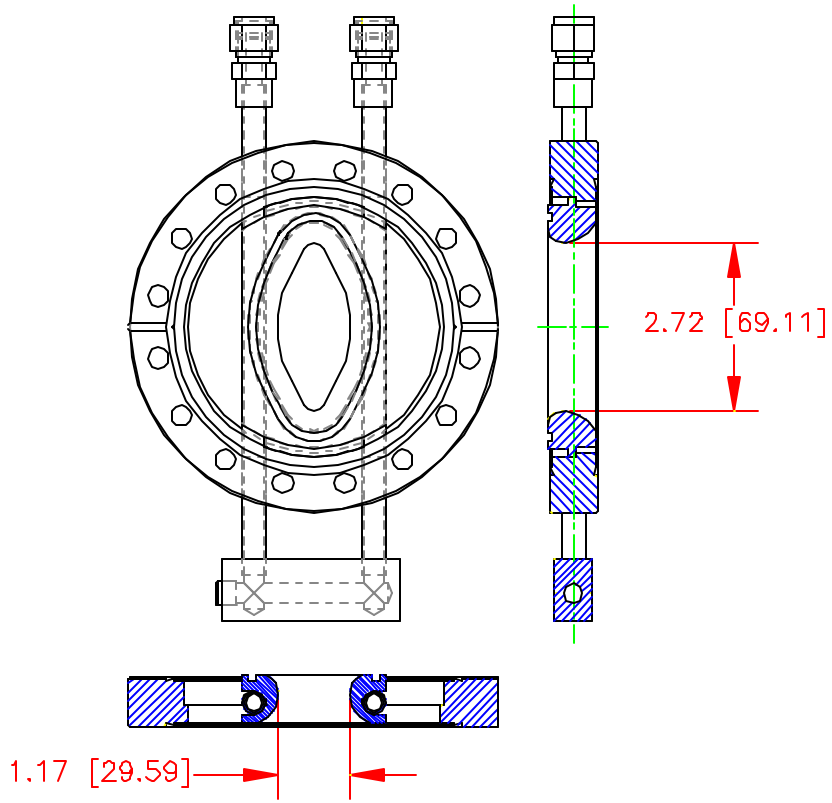


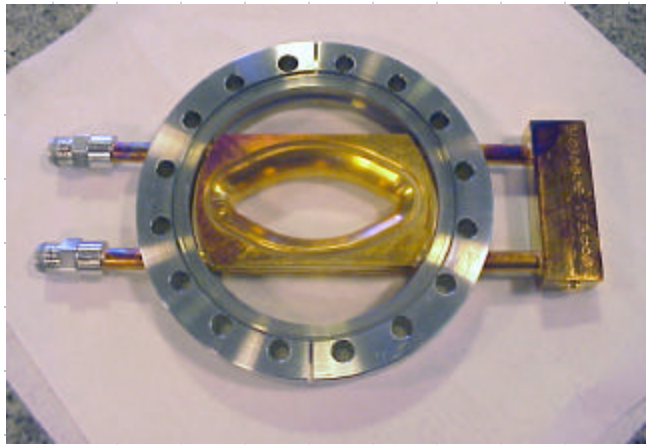


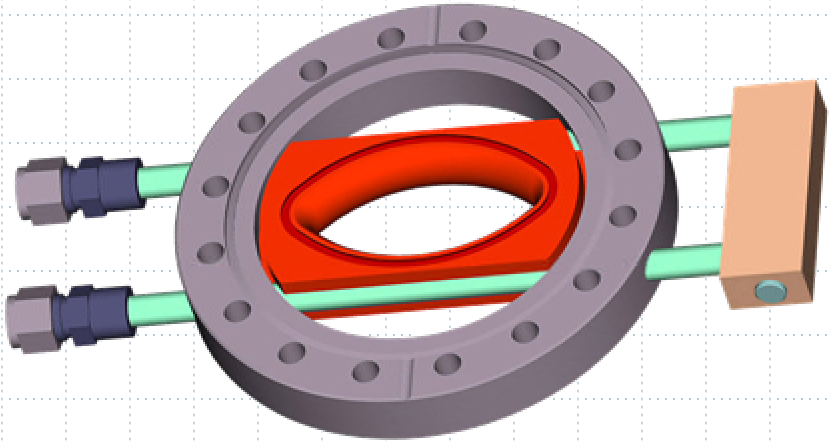


- Approx. the same aperture as in the Al vacuum chambers
- Separate bellows assemblies; Glidcop fingers
- Better alignment of the ceramic chamber and coils
- Uniform conductive coating (done by Kyocera)

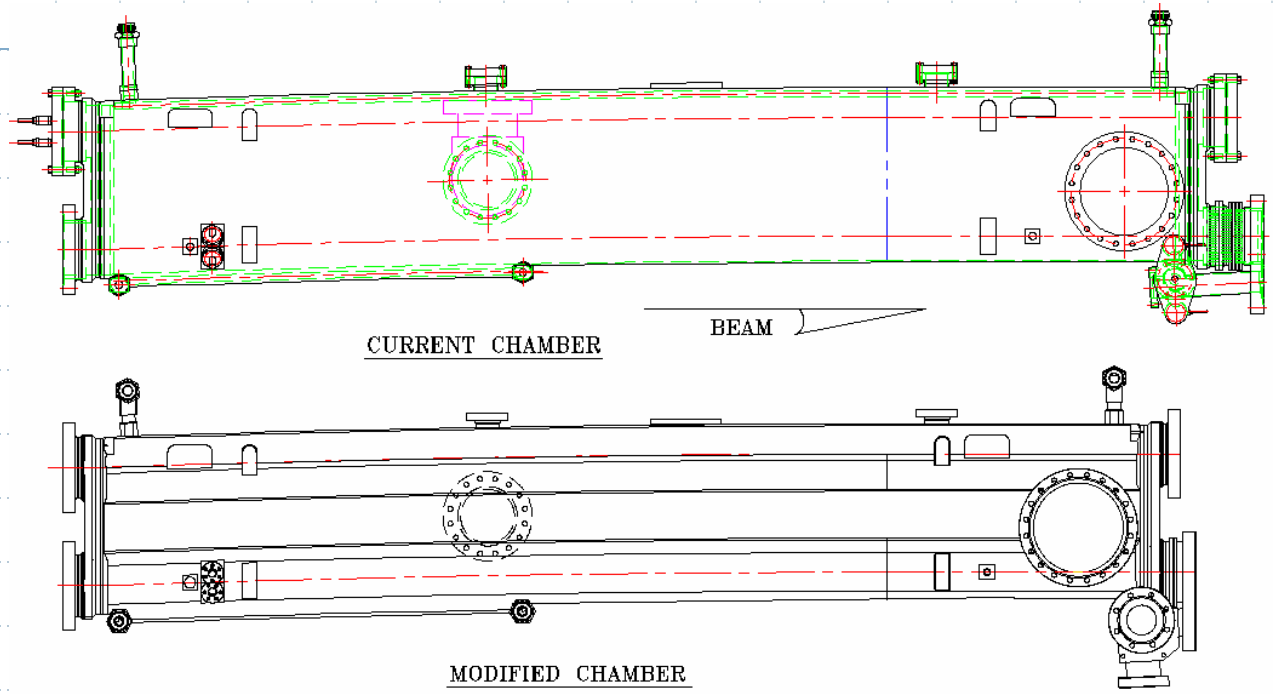
Transition Absorber







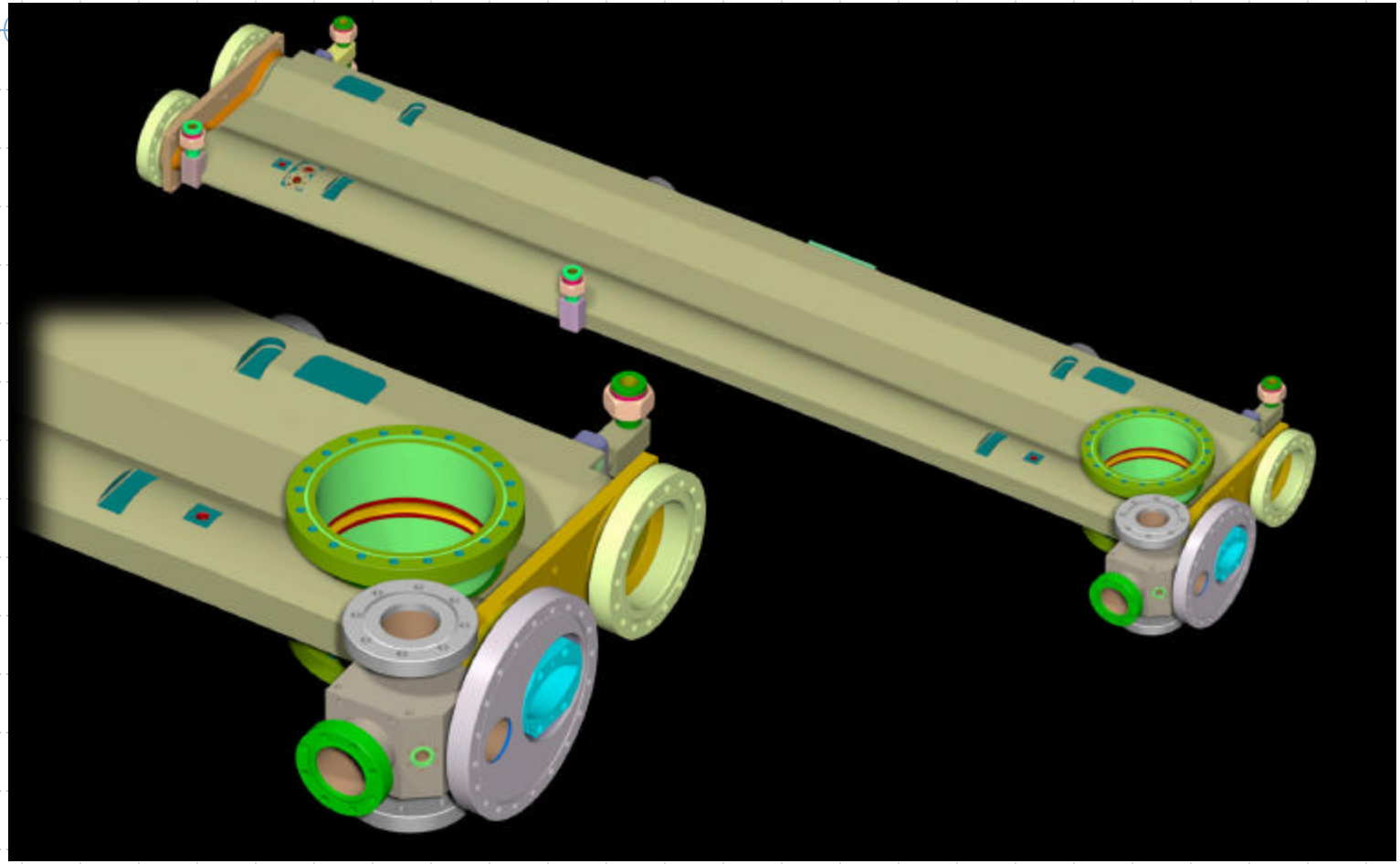
Current & Modified SR Vacuum Chamber



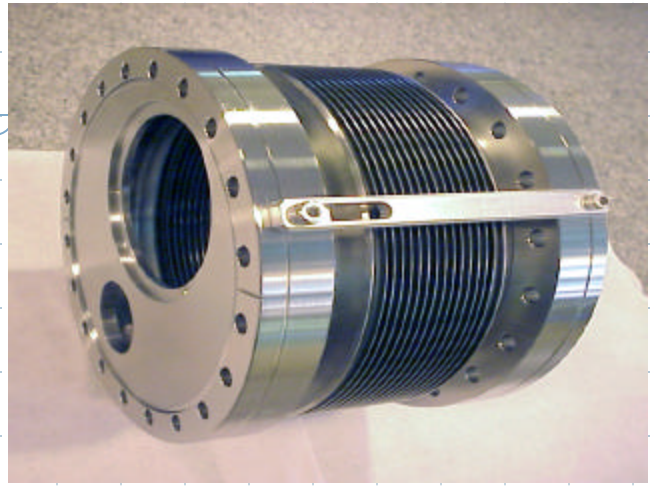
Mini Flag Port

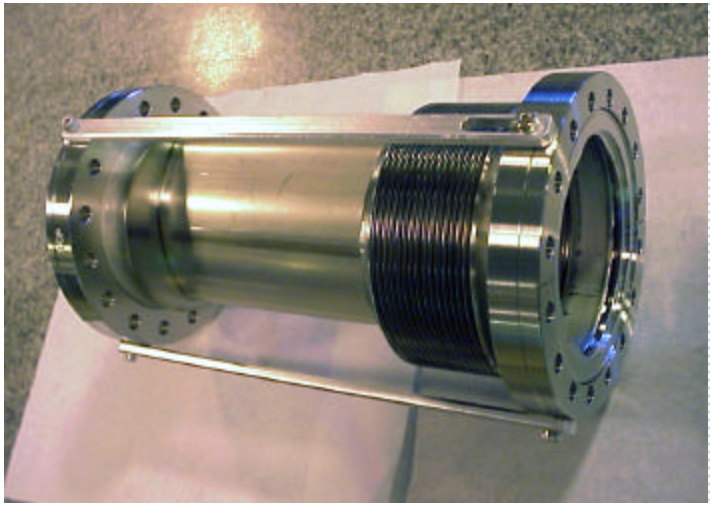
- Separate bellows assembly
- Additional port for the mini flag

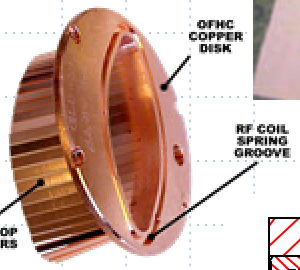
Redesigned SR Vacuum Chamber

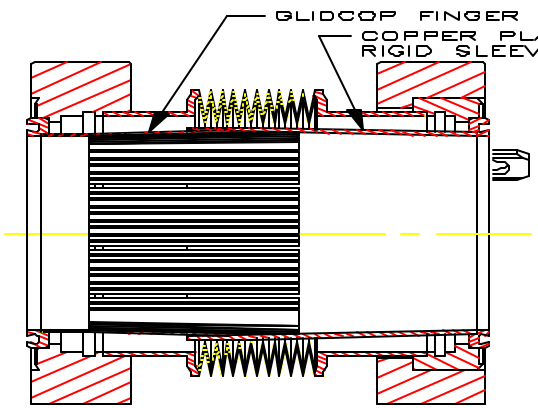


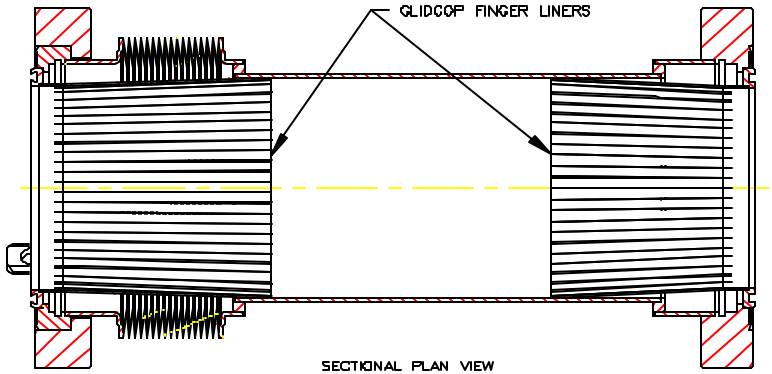
Bellows and Liners



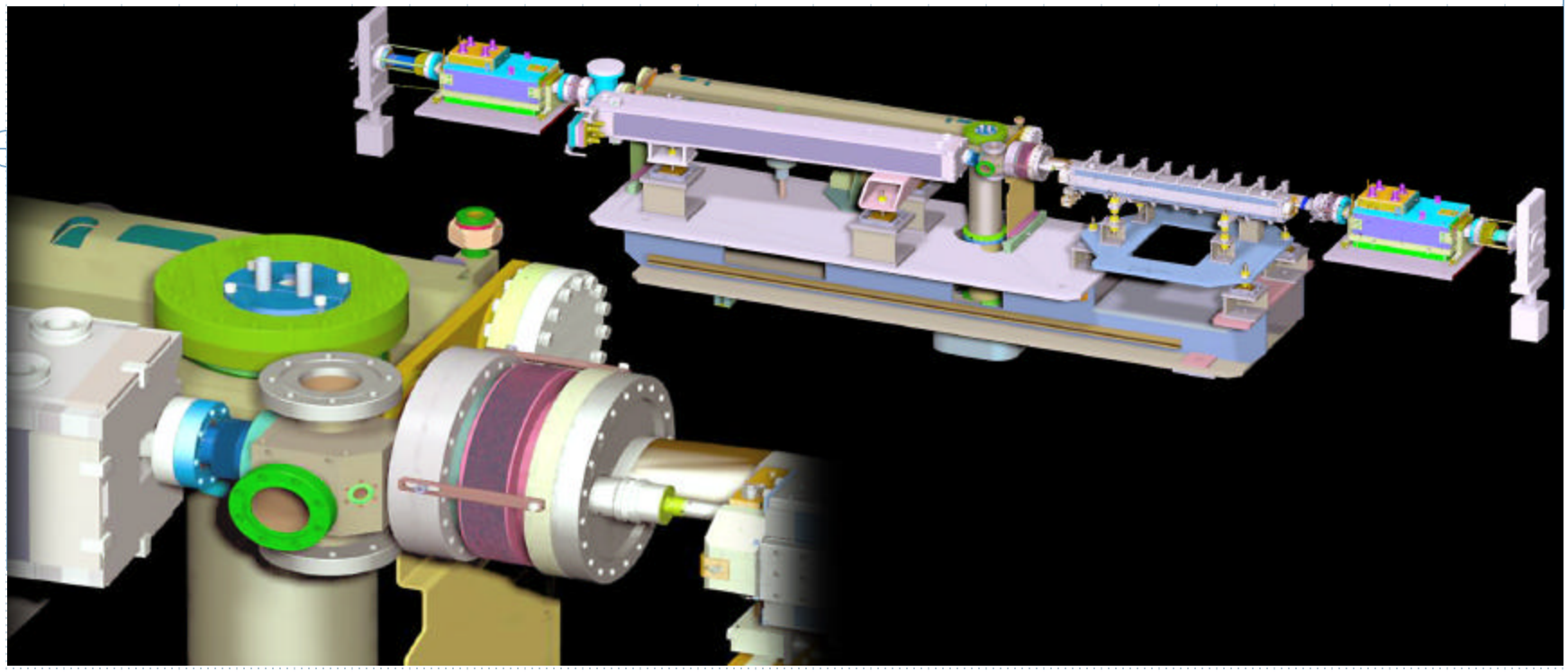


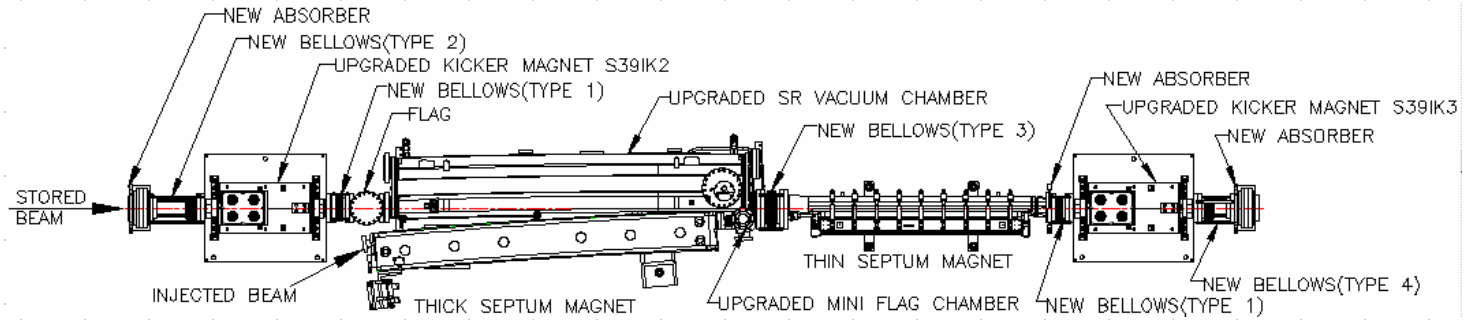






Upgraded Storage Ring Injection Area



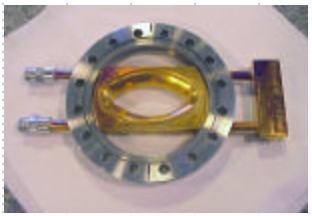


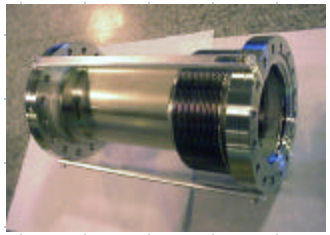
Storage Ring Injection Area Upgrade

Upgraded components:

1. **Kicker Magnets**
2. **Insertion Chamber**
3. **Bellows and Liners**
4. **Transition Absorbers**
5. **Mini-Flag Chamber**
6. **Girder**







Mechanical Engineering Group
Accelerator Systems Division

Advanced Photon Source
Argonne National Laboratory

Storage Ring Injection Area Upgrade

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Leonard Morrison

Designer:
Michelle Givens

Assisted by members of ME, Vacuum, S&A, DD, Physics, PS, Diagnostics and CS