Space-frame Accelerator Support System

- Specifications
- Modularity
- Technical Requirements
- Assembly Process
- R&D Program
For Short Wavelength Misalignments

- $AX < +/- 100$ microns
- $AY < +/- 20$ microns

For Long Wavelength Misalignments

- $AX < +/- 200$ microns
- $AY < +/- 100$ microns
Space-frame Accelerator Support System

- Modularity
  - Accelerator, RF Feed, and Vacuum System treated as a single unit
  - Processed as a single unit
  - Inventoried as a single unit
Space-frame Accelerator Support System

- Technical Requirements
  - x,y,z constraints at Input end
  - x,y constraints at Output end (z-flexure)
  - assume x variation is acceptable after final braze (no straightening)
  - y adjustability (z-flexure) with struts (1°=>1μ)

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Space-frame Accelerator Support System

- Assembly Process
  - Fix input end
  - Fix output end
  - strut is welded to bosses on space-frame and accelerator in “perfect” y-alignment
  - adjust struts to centerline defined by output and input end
Space-frame Accelerator Support System

- R&D Program
  - build mock-up
  - align and measure with CMM
  - Build Girder
  - assemble three structures to Girder
  - cycle test