

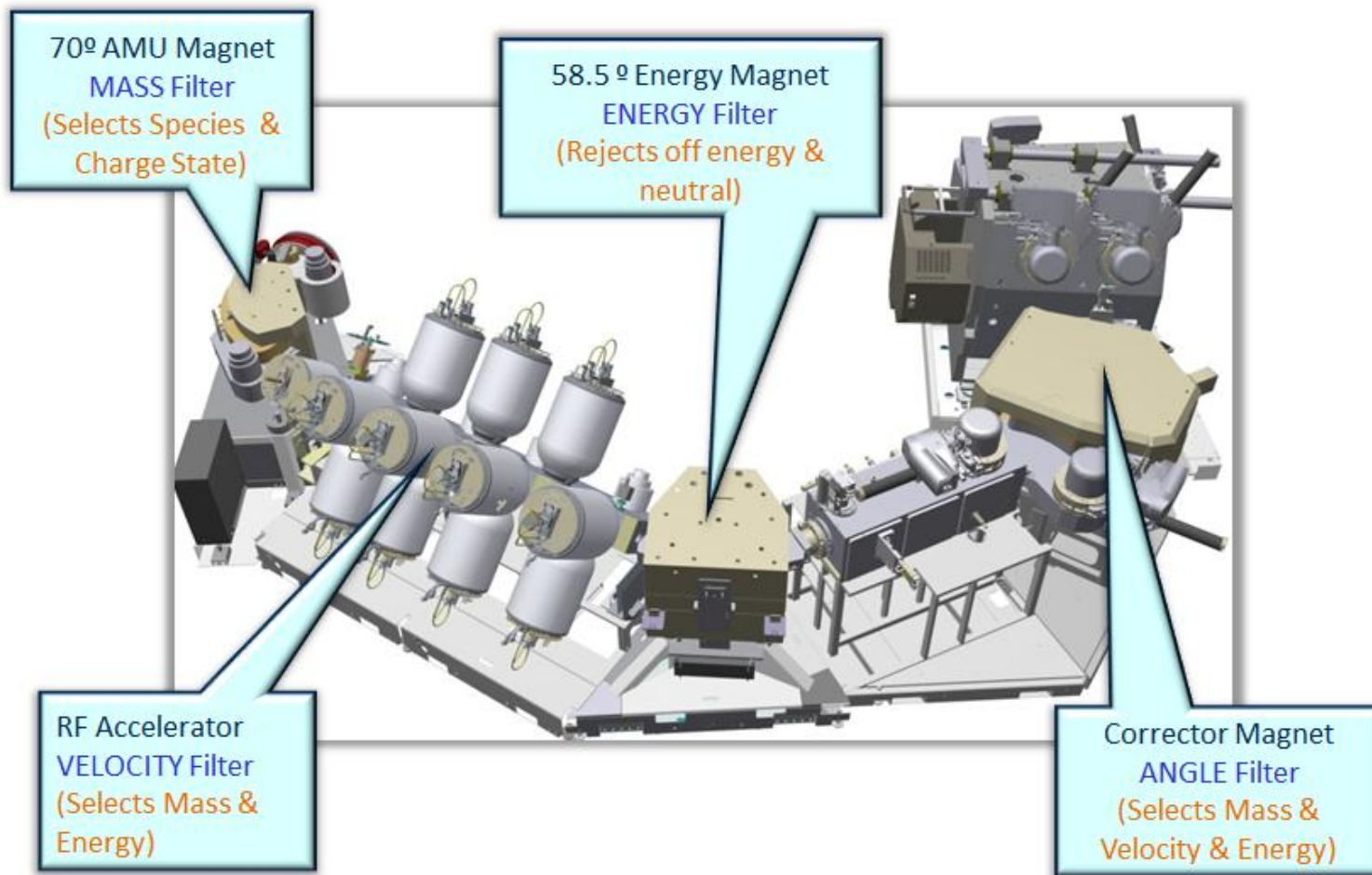


Purion XE – Purity, Precision, Productivity

Industry Leading Beam Purity

Purion XE: Industry Leading Contamination Control

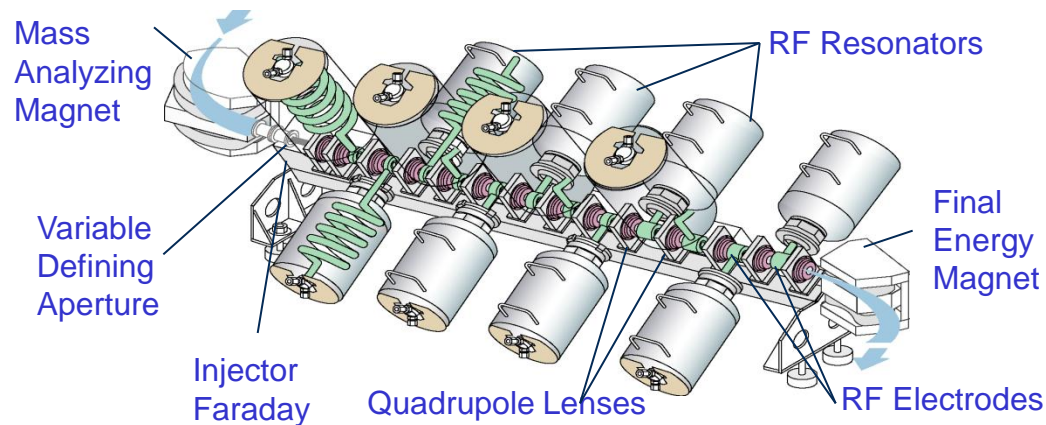
Multiple Points of Filtration



Axcelis' High Energy Ion Implanters

Superior Contamination Control – Beam Purity

- Unmatched beam purity through triple filtration
 - Mass analysis magnet - Mass filter - selects species and charge state
 - Production proven RF Linear Accelerator - Velocity Filter – mass and energy
 - Final Energy magnet - Energy filter - selects final energy and rejects neutrals

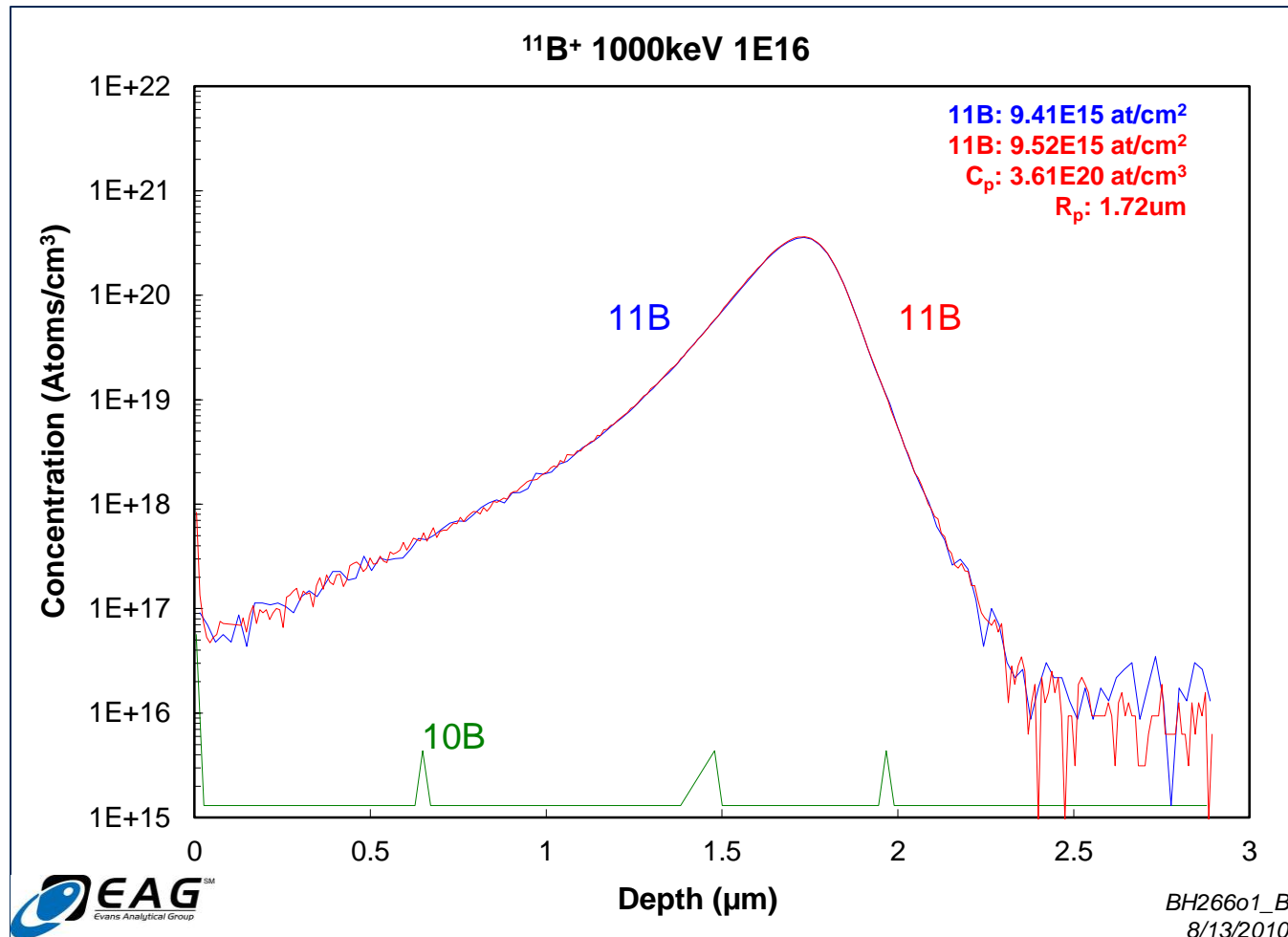


- No energy or foreign species contamination seen at SIMS detection limits
 - Energy contamination < 0.01%
 - Foreign species contamination < 0.001%

Purion XE Mass Filtering

No ^{10}B Detected in $^{11}\text{B}^+$ 1000keV 1E16 SIMS

- Source gas: Non-enriched Boron (80% ^{11}B , 20% ^{10}B)
- Recipe: $^{11}\text{B}^+$ 1000keV 1e16 implanted on Purion XE
- ^{10}B reduced by > 10,000X from source to wafer, despite a mass difference of only 10%



Optima XEx Process Advantages

Unmatched Species Purity

- A 2500 keV P⁺⁺⁺ implant was performed while feeding ~10% non-enriched BF₃ into the arc chamber.
- The ¹⁰B SIMS profile, despite having an extremely low background level, reveals no energetic ¹⁰B contamination in the P⁺⁺⁺ implant.
- The integrated ¹⁰B dose of ~3x10⁹ cm⁻² indicates an energetic contamination level of ~ 1 part per million.
- Again, the ³¹P SIMS profile is devoid of energy contamination

