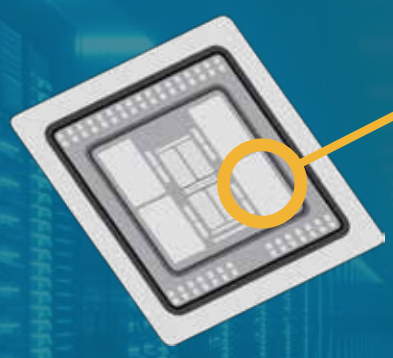
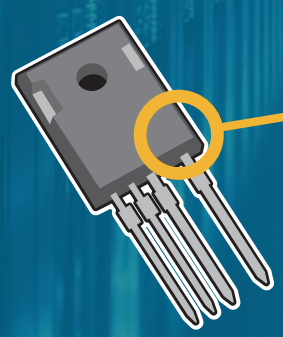
Why do I need multiple ion species?

High performance technology is driving device complexity…



3D advanced packaging poised to unlock the future of AI and beyond, is used in high-bandwidth memory chips that may contain up to 20 layers by 2030



Wide-bandgap technology is projected to reach 35% of the global power electronics market in the next 5 years

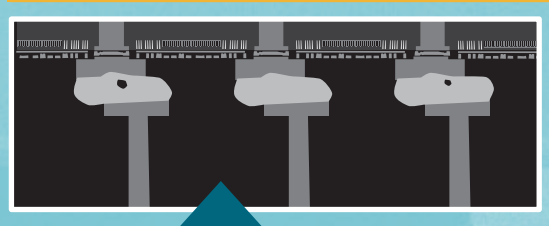
Large volumes
Mixed materials
Intricate structures
Buried defects

Advanced analytical capabilities are required to improve yield and reliability

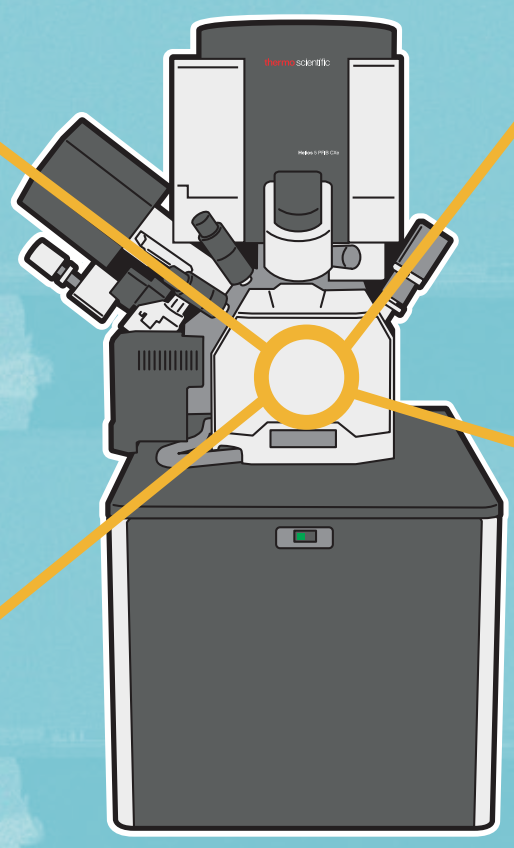
Which ion species should I use?

The Thermo Scientific Helios 5 Hydra PFIB DualBeam provides total flexibility to optimize your processes with Xe, Ar, O, and N. Ion choice depends on the material and technique:

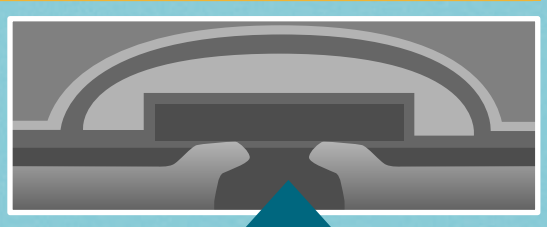
silicon **Xe+ Ar+**



Inert species, like Xe+ and Ar+, mill without altering sample structure

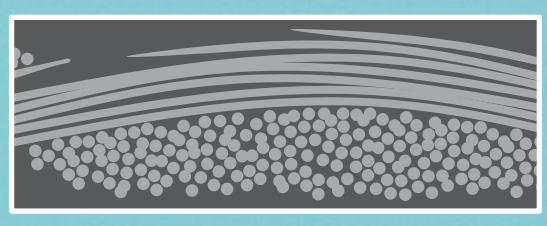


Ar+ compound

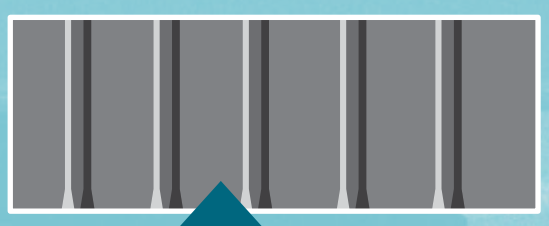


A wide-bandgap material like SiC is more than 2× harder than silicon

O+ organic



ceramic and glass **Ar+**



While many IC substrates are organic, glass core technology is on the rise

2× faster cross-sections
Artifact-free cross-sections
Damage-free TEM sample and delayering preparation

Faster time-to-data with optimal cut quality and minimized damage