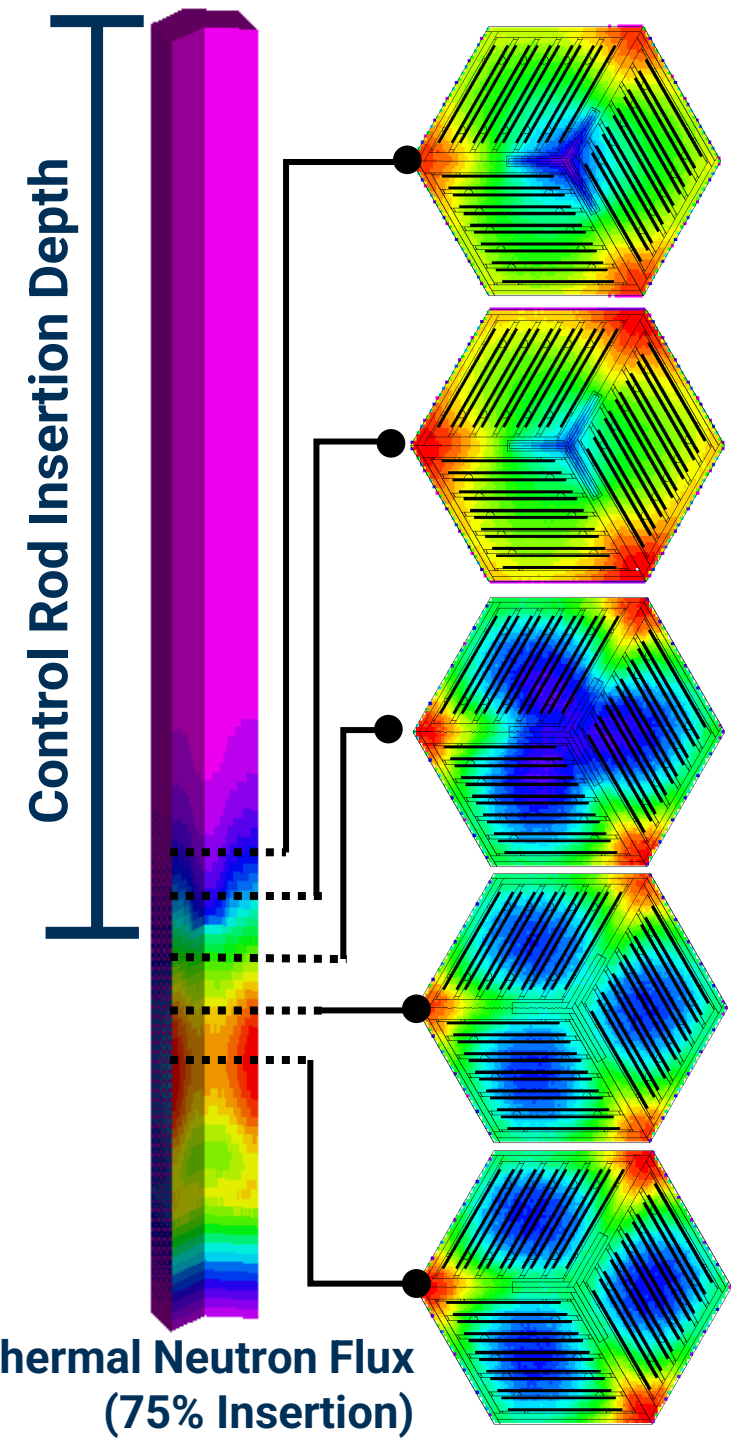
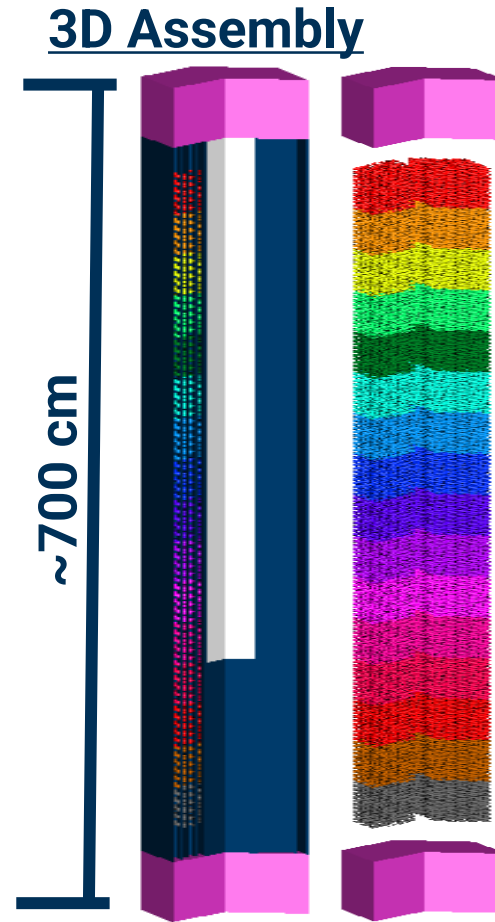
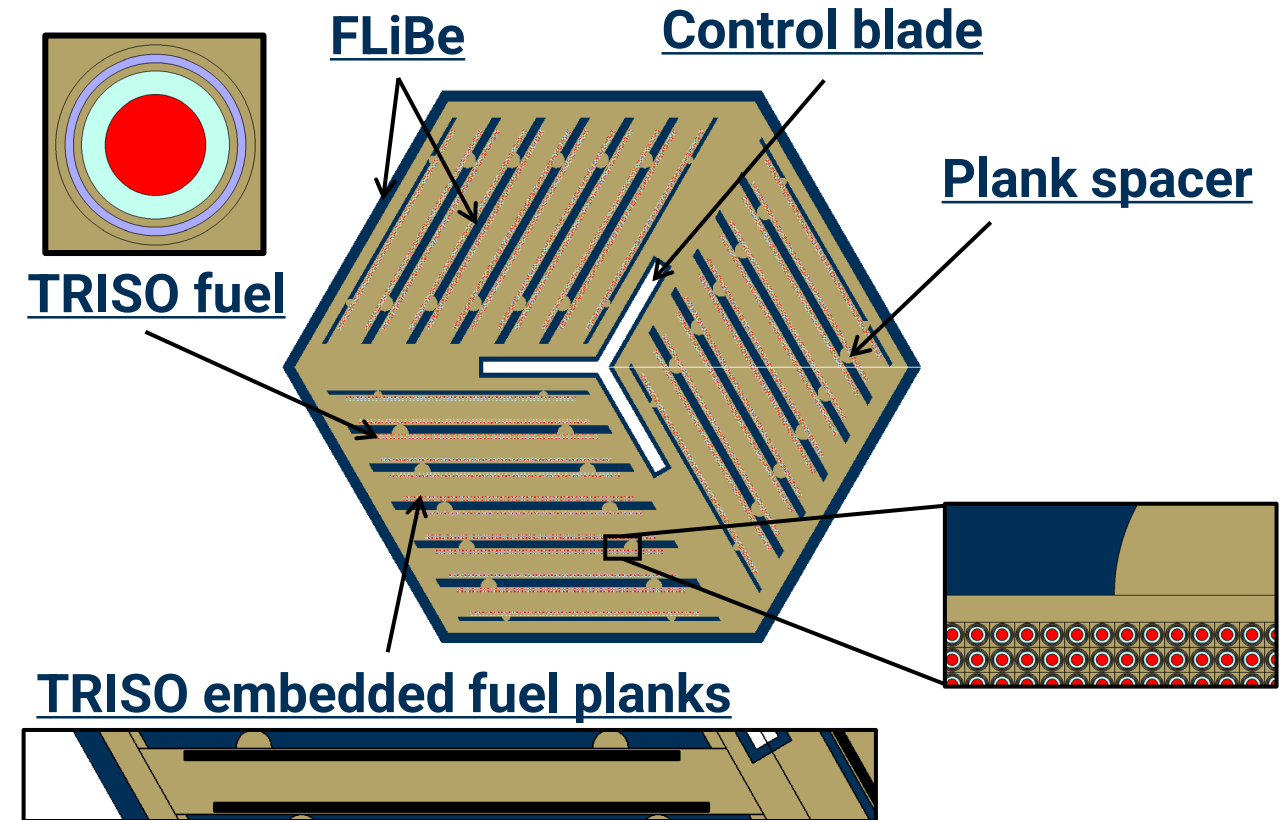


OECD-NEA FHR Benchmark – Controlled Assembly Model



- AHTR style FHR developed for OECD-NEA benchmark calculations
- 3D Static (KENOVI) and depletion (CE-TRITON6) benchmark calculations performed
 - keff, flux shape, spectrum, isotopic evolution,
- Presented calculation: **55 hours** | **24 cores** | **97.7% parallel efficiency** | **100M particles** | $\sigma = 9$ pcm
- 179,504,640 TRISO particles for a single 3D assembly -> more than 1.08 billion TRISO related surfaces
- “Triple” heterogeneity: TRISO → fuel plank → assembly → full core
- Other interesting aspects: graphite content, periodic BC mandated, relatively decoupled core
- Very long core + low absorption in graphite + many surfaces = very long simulation times
- **Purpose:** Complex geometry and heterogeneity introduce interesting/non-trivial challenges when performing benchmark quality calculations. Our goal is to evaluate challenges and benchmarking differences between state-of-the-art MC and deterministic codes