

## Poster 438 - Highlights

- Poster title: *Application of State Quantization-Based Methods in HEP Particle Transport Simulation*
- Quantized State System (QSS) methods are a novel family of numerical integration methods exhibiting attractive features for HEP simulation (e.g., dense polynomial output and lightweight detection and handling of boundary crossings).
- This work explores the usage of QSS methods in HEP simulation by means of a performance comparison between a standalone QSS-based solver and the Geant4 simulation toolkit.
- Results showed speedups up to 8x in case studies for a single particle oscillating harmonically in the  $x$ - $y$  plane with a uniform  $B$  field in the  $z$  plane.