Progress to date

- Benchmarked linear and nonlinear instability calculations of ion temperature gradient–driven instability in cyclone base case between GENE and XGC to remarkable accuracy (~5%).
- Created core-edge coupling algorithms with minimum data movement between the codes that led to 10× performance improvement.
- Collaborated with the Co-Design Center for Particle Applications Codesign Project to develop and use the Cabana particle library for more stable execution of XGC on Summit without performance degradation.

WDMApp will use exascale computing to provide a whole device modeling capability for magnetically confined fusion plasmas that, due to sparse experimental data at proposed operating conditions, is required to design ITER and future fusion power reactors.