

# Next Steps For Applied Math Research in FACETS

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## Summary of Tasks

- ▶ Complete development of robust, flexible core solver algorithm. Use PetSC SNES and/or TS as well as advanced algorithms for adaptive solution to minimize flux calculations and improve convergence. (Ammar, Carlsson, Mike, Sean)
- ▶ Continue coupling research with non-linear problems and “non-conforming” 1D grids. Do this in FACETS. (Brendan)
- ▶ Complete and test MILP decomposition scheme in FACETS. Integrate into improved core solver. (Tom Epperly, Mahmood, Ammar)
- ▶ Create test cases with TGLF and GYRO in core solver for performance analysis. (Alexei, Wyatt)
- ▶ Perform some initial research on parallel load balancing and communication. (Wyatt, Tom Epperly)