

Potential areas of common interest in astrophysics and cosmology

- Determine how results from high-resolution zoom-in galaxy formation simulations can inform in a useful way how galaxies are "painted on" very large dark matter-only simulations (Habib + Faucher-Giguère).
- Formulate a rigorous mathematical procedure to optimally sample halos / halo assembly histories in setting up zoom-in samples, in terms of covering the range of possible outcomes at minimum cost (Habib + Faucher-Giguère).
- Identify opportunities to speed up our cosmological simulation codes using GPU + many-core technologies. Specific question of whether the coupled, stiff ODE solver for ISM chemistry could be sped up by a large factor using such technologies (Habib + Faucher-Giguère).
- Opportunities for connecting galaxy formation observations and simulations (Faucher-Giguère + Habib + Menendez-Delmestre + Goncalves). Could this connect in a meaningful way to the other efforts in dark matter and neutrino science by the rest of the collaboration?