

Nektar-Particles (PM)

There was a side discussion between Will Saunders, Dave Moxey and Chris Cantwell. These discussions covered low level implementation details regarding:

- Projection of particle data onto the FEM function space and how this could be implemented. using existing Nektar++ methods.
- Evaluation of FEM fields at particle locations.
- Potential road-map for performance-portable implementation of projection/evaluation.
- Sketching how to implement mesh augmentation to create halo regions using nektar++ meshes.

Discussion occurred between the Nektar++ team and Patrick Farrell regarding mathematical formulations for approaching Equation system 2-6 using a finite element method.

James Cook fielded questions from Chris Ridgers regarding 2-6 and Hermes3. JC and CR followed up at UKAEA.

- CR is new to BOUT++ and isn't an original author I.e. Ben Dudson
- CR isn't able to start on his grant because York-UKAEA hasn't got the financial/admin stuff settled
- Hermes3 is ready to run and Equations 2-6 is not.

Chat between JC and Martin O'Mullane about how atomic (and molecular) processes fit into the big picture. Requested follow up with MO'M to understand some equations. The result of the follow up was:

- MO'M is to send on "dummies guide to" to atomic processes.
- JC to follow up with David Moulton to learn more about the SOLPS-ITER workflows
- JC to put together a plan for a simple atomic processes code, featuring details of rates and numerical methods.

Note added by WA: Matthew Barton is tasked with ensuring that atomic and radiation processes defined by ADAS may be implemented in NEPTUNE software. There is an Annex to the Equations document designed to serve as an introduction to the subject