

Abstract Submitted
for the DPP10 Meeting of
The American Physical Society

Gyrofluid simulations of turbulence in the Trinity transport code

KATE DESPAIN, WILLIAM DORLAND, University of Maryland, MICHAEL BARNES, University of Oxford — In order to fully understand the effect of turbulence on the evolution of background profiles in fusion devices, the transport code Trinity was developed to tie together these processes that live on disparate temporal and spatial scales. Such an approach leads to potential computational savings on the order of hundreds (Barnes, et al. PoP 2010). In order to increase the computational savings, we have incorporated the use of the recently updated gyrofluid code gryffin into the Trinity framework decreasing computational size by a factor of a hundred or so. We have furthered enhanced savings by running gryffin calculations on GPUs creating a potential 25 times speed up. Such a computational savings allows for the exploration of novel fusion device configurations. We present initial numerical results.

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Date submitted: 16 Jul 2010

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