

Abstract Submitted
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NUBEAM as TRANSP parallel service and component for SWIM or FACETS K. INDIRESHKUMAR, LONG-POE KU, D. MCCUNE, L. RANDERSON, PPPL, A. PLETZER, Tech-X Corp., A. MALONY, A. MORRIS, S. SHENDE, Paratools, Inc. — The PPPL Monte-Carlo module NUBEAM is a package for modeling fast ion species in an axisymmetric tokamak. Since its parallelization in 2006, it has been deployed as part of the TRANSP Parallel Service at PPPL. The recently updated parallel service allows for concurrent running of multiple processes consisting of serial TRANSP client jobs sharing a multi-processor server for the NUBEAM code; performance characteristics of the parallel server will be described in this poster. NUBEAM has also been configured to run simulations for the SWIM project. We have recently performed the first 16-processor TSC/TRANSF simulation of the 200s approach to flat-top of an ITER hybrid scenario discharge in the SWIM framework. Currently efforts are underway to incorporate NUBEAM as a formal component in the FACETS and SWIM SciDAC frameworks, coupled through the SWIM Plasma State interface similar to other tokamak heating and current drive models in these projects. This poster will discuss performance scaling, computing/communication costs and physics benefits of parallelized NUBEAM as a component in TRANSP parallel services and SWIM/FACETS.

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