

Abstract Submitted
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Transpose Algorithms and Visualization in Computational Plasma Physics¹ G. VON NESSI, University of Massachusetts, Lowell, J. CANDY, General Atomics — We present a systematic study of “transpose” algorithms required for parallel data distribution. The need for an algorithm of this type arises naturally when applying operator-splitting methods to multidimensional PDEs. Specifically, we are interested in the solution of the gyrokinetic-Maxwell equations using a fixed Eulerian grid. We discuss strategies to determine optimal stride length and data grouping scheme for given grid dimensions. We also explore the problems of data I/O, visualization, and image rendering. One aspect in particular we hope to explore is the feasibility of using multiple processors to analyze and render data generated by plasma simulation code. In addition to this, the implementation of the MDSplus data format to store simulation data is investigated. The goal is to achieve as much as possible using open source software such as Visualization Toolkit (VTK) in order to minimize the fusion community’s reliance on expensive commercial software such as Interactive Data Language (IDL).

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Prefer Oral Session
 Prefer Poster Session

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Special instructions: Undergraduate Student Research Session

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