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FSML - Fusion Simulation Markup Language for Interoperability of Data and Analysis Tools SVETLANA SHASHARINA, CHUANG LI, Tech-X Corporation — The fusion community becomes more interconnected and problems become more complex. This requires the internetworking of various codes, comparing solutions from multiple solvers, and sharing of data and data analysis tools. However, the data formats and data analysis tools used in simulations are highly heterogeneous. Imposing one standard data format and one type of tools is unrealistic due to historical and practical reasons. In this paper, we introduce the Fusion Simulation Markup Language, or FSML - an XML based system for describing and accessing fusion and plasma physics simulation data of various formats used in the fusion community. The system consists of syntactic and semantic metadata organized in specialized XML schemas and APIs written for accessing data from major data analysis and visualization tools. We present the preliminary results, using a subset of MHD variables, and demonstrate their application for two large three-dimension fusion simulation codes M3D and NIMROD. The FSML schema is being extended to include all fundamental MHD variables and other simulations metadata. Comprehensive modules for 3D visualization are being augmented with a set of tools for data interpolation. Finally, FSML is being extended with common API's for accessing data on structured and unstructured meshes.

Svetlana Shasharina
Tech-X Corporation

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