

Abstract Submitted
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Progress of Parallel Validation Tools for Fusion Simulations as Applied to Synthetic Diagnostic Efforts¹ SRINATH VADLAMANI, SVETA SHASHARINA, SCOTT KRUGER, MARK DURANT, DIMITRE DIMITROV, Tech-X Corporation, CHRIS HOLLAND, UCSD, JEFF CANDY, General Atomics, SCOTT PARKER, YANG CHEN, WEIGANG WAN, Univ. of Colorado-Boulder, ALLEN SANDERSON, Univ. of Utah — The verification and validation (V&V) of fusion simulation codes is necessary to ensure proper support of ever-increasingly expensive experiments such as ITER. Synthetic diagnostics are an important and useful tool for these V&V efforts, and is the focus of the Parallel Validation Tools for Fusion Simulations project. We will present our effort to develop standards, called schemas, for the data exchange between codes and synthetic diagnostics. We have developed a formal schema (expressed with XML Schema syntax) for specification of data for visualization and for data exchange. We have also developed a python tool for verification of HDF5 data against the formal schema. We will present the API for writing and reading HDF5 data compliant with the standards above in Fortran90, IDL, python, C and the VisIt visualization tool, enabling the user to decide the tool that works best to accomplish their goals. We will present the development of synthetic diagnostics based on this capability. These tools will be applied to the GYRO and the GEM codes for synthetic diagnostics using DIII-D experimental profiles.

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