

Abstract Submitted
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Multi-Block Development and Applications of HiFi WESTON LOWRIE, URI SHUMLAK, University of Washington, VYACHESLAV LUKIN, Naval Research Laboratory, ALAN GLASSER, University of Washington, PSI-CENTER COLLABORATION — Recent improvements to the 3D high-order finite (spectral) element HiFi code include allowing for multiple structured domain blocks to be included as one computational domain. The blocks themselves must be structured, but the collection of blocks can be unstructured. This improvement now allows for much more complex and interesting domains to be modeled including body-fitted, and non-simply connected 3D geometries. Using this new ability in the HiFi code, applications of both the ZaP z-pinch experiment and the HIT-SI experiment are possible. Preliminary MHD plasma solutions with these new geometries will be presented. Additionally in these cases the geometries will have distortions in their elements, which can yield significant errors in field solutions. Mesh metrics are used to correlate the solution error and predict solution error magnitudes.

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