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Using adaptive finite element toolkit to generate initial data for multi-block infrastructure OLEG KOROBKIN, Louisiana State University — Applications of finite elements toolkit (FEtk) for generating initial data compatible with multiblock infrastructure are explored. In finite element methods, in particular for high-order finite element case in 3D, interpolation of solution to cartesian grid is rather time-consuming. If finite element mesh has to be generated in such a way that its vertices correspond to cartesian grid, no interpolation will be required and solution can be transparently ported to finite differences code (like Cactus), and back. An algorithm for generating such mesh for multiblock infrastructure was developed. Sample Brill wave initial data solutions obtained with use of this algorithm on FEtk with adaptive mesh refinement are presented.

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