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CartGen: Robust, efficient and ea uniform/octree/embedded bou grid generator

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SUMMARY

An efficient and easy to implement method to generate Cartesian g generates various kinds of Cartesian grids such as uniform, oc supports the variation of grid size along each spatial direction refinements. The efficiency and ease of implementation are the in contrast to the alternative methods. Regarding octree grid gen data compression method permits to store all grid levels witho presented method generates octree grids up to a 13-level refine from a complicated geometry in a few minutes on the traditional implementation of the presented method is freely available unde license. Copyright q 2007 John Wiley & Sons, Ltd.

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KEY WORDS: Cartesian grid generation; embedded boundary; octree generation; STL file; voxelization

1. INTRODUCTION

Several numerical methods in the computational mechanics volume method (FVM) and finite difference method need to sub-domains, which is called the spatial computational grid. ation is one of the focus areas in the research of computa geometry [1].

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