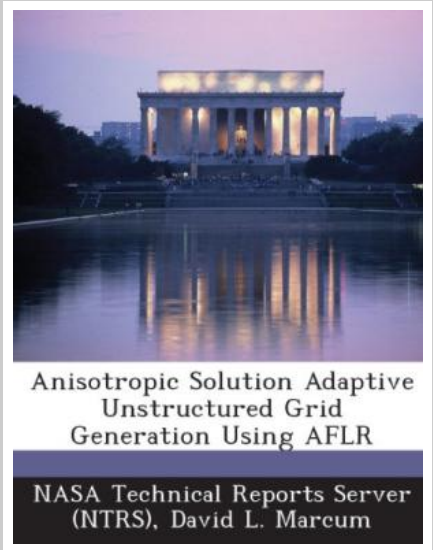

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Anisotropic Solution Adaptive Unstructured Grid Generation Using Aflr

By David Marcum

Bibliogov, United States, 2013. Paperback. Book Condition: New. 246 x 189 mm. Language: English . Brand New Book ***** Print on Demand *****.An existing volume grid generation procedure, AFLR3, was successfully modified to generate anisotropic tetrahedral elements using a directional metric transformation defined at source nodes. The procedure can be coupled with a solver and an error estimator as part of an overall anisotropic solution adaptation methodology. It is suitable for use with an error estimator based on an adjoint, optimization, sensitivity derivative, or related approach. This offers many advantages, including more efficient point placement along with robust and efficient error estimation. It also serves as a framework for true grid optimization wherein error estimation and computational resources can be used as cost functions to determine the optimal point distribution. Within AFLR3 the metric transformation is implemented using a set of transformation vectors and associated aspect ratios. The modified overall procedure is presented along with details of the anisotropic transformation implementation. Multiple two-and three-dimensional examples are also presented that demonstrate the capability of the modified AFLR procedure to generate anisotropic elements using a set of source nodes with anisotropic transformation metrics. The example cases presented use moderate levels of anisotropy...

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