

A COMPUTATIONAL STRATEGY FOR VERIFICATION AND VALIDATION IN COMPUTATIONAL MECHANICS; PART 1: THE DETERMINISTIC CASE

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A mathematical framework and a computational procedure for the verification and validation of computer predictions in computational mechanics are presented. The approach is based on the concepts of hierarchical modeling and a posteriori error estimation of approximation error. Techniques for estimation errors in local quantities of interest for model boundary-value problems in continuum mechanics are presented. In part 1 of this work, attention is confined to the problems with deterministic data. The theoretical details are representation examples are presented.