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Preface to pp. 1–79

The 12th International Conference on Structural Mechanics in Reactor Technology (SMiRT-12) took place at the University of Stuttgart, Germany, on 15–20 August, 1993. This double issue begins with six papers written on the basis of presentations given during the conference, in particular during Division E: Fast Reactor Core and Coolant Circuit Structures. During these sessions, 56 papers were presented in the following domains: experimental techniques and numerical methods for thermal, mechanical, and fluid structure analysis applied to problems of fast-breeder reactors under normal operating and overload conditions; thermal fatigue and creep analysis of core components and coolant circuit structures; dynamic response of primary containment, core components and support systems to postulated accident conditions and other loadings; transient heat transfer and natural convection problems; experimental validation of computer codes.

In the structural design of FBR components, special consideration is given to thermal and seismic loading. The advanced and elaborate methodologies for thermal and seismic analyses are required to estimate precisely the loading conditions imposed on components. Furthermore, the improvement of more reliable procedures with broader applicability is pursued for assessing structural integrity against cyclic thermal stresses at elevated temperatures and buckling due to seismic loadings.

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