Validation of CAST3M on some test cases

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Abstract:

In nuclear engineering applications, computational fluid dynamics (CFD) codes are increasingly becoming an important tool for design and analysis problems. For instance, CFD tools have been widely used for safety issues in the analysis of hypothetical loss-of-coolant accidents in pressurized light water reactor. CFD codes are also used for the design and analysis of systems for the next generation nuclear power plants, including the so-called high-temperature gas reactors.

One of these codes is CAST3M. CAST3M originally designed for the analysis of structures and solving partial differential equations by the Finite

Element Method (FEM). Cast3M is product of the French Atomic Energy Commission (CEA). Its application's domain are structural mechanics, fluid mechanics, thermal problem. I validated this code in some elementary equations concerning the convection and the diffusion transfer....""