Simulation of Flame Propagation in a Tube with Obstacles

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A fictitious domain method (FDM) is extended and implemented for time dependent combustion problems in non-regular closed domains. FDM allows to work in regular domains using regular meshes independently of the geometry of the actual domains. Up to now a FDM was used for solving the problems of physics with Dirichlet boundary conditions. In the paper a fictitious domain method is extended and implemented for combustion problems in non-regular domains. The propagation of 2D laminar methane-air flame in a tube with obstacles are simulated and studied.

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