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16. Applications

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Duck-trajectories in combustion problems

The models of burning processes of rarefied gas mixture in an inert dust-laden or in porous medium are investigated . We study the case of an uniform distribution and phase-to-phase heat exchange. The chemical conversion kinetics are represemted by one-stage and irreversible reaction. The three-dimensional system of ordinary differential equations is used as model of this process.

Taking into account external heat dissipation the existence of a duck-trajectory associating with preassinged initial conditions is stated. This trajectory is the model of critical regime. The critical regime corresponds to chemical reaction separating the domains of selfaccelerating reactions and domains of slow reactions.