Combustion waves in porous media with thermal losses

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Some analytic studies on filtration combustion will be presented. We will consider mathematical models describing the phenomenon in different physical configurations. Some examples that will be considered: the existence and uniqueness of solutions was considered for combustion in foams [2] and in porous media [3], taking into account the thermal losses [1]. The models are composed of Partial Differential Equations (Balance Laws). The corresponding Riemann Problem solutions are presented as a sequences of contact waves and traveling waves using techniques from Conservation Law Theory and Dynamical Systems. Analytic estimates are validated through numerical simulations using Finite Element Method [4].

References

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