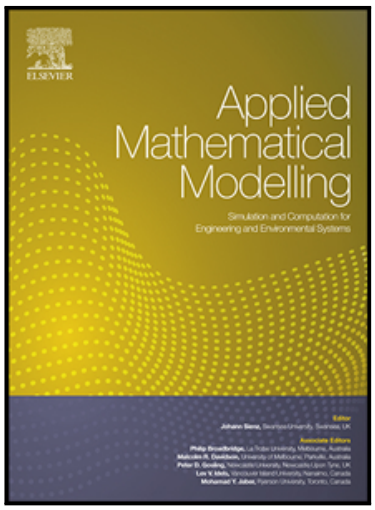

Deflagration-to-Detonation Transition in Pipes: The Analytical Theory

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Highlights

1. The fundamental aspects of the Deflagration-to-Detonation Transition (DDT) phenomenon are presented.
2. This DDT theory is capable to predict the pressure rise and the shock wave speed for a given fuel type and concentration
3. The overpressure of 1.7 MPa for methane and hydrogen was observed from both experiment and theory.
4. This DDT theory should be of practical interest to engineers designing and assessing petrochemical plants.