

Shock wave – boundary layer interaction driving DDT

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Purpose The theme of this work is to show that the reason for an auto-ignition in the boundary layer that drives DDT in a smooth tube is shock wave – boundary layer interaction.

Results Analysis seeks to demonstrate physics of the interaction in a matter of fluid dynamic and thermodynamic view. Shock waves which propagate between the precursor shock and the flame interact with the boundary layer heating it up one again. With the sufficient induction time one can observe an auto-ignition. From the process of the auto-ignition a new flame is developed and it propagates along the wall with more than local sound speed, which makes it a fast flame, and after flames collision triggers DDT in consequence.

利用した計算機	SX-9
CPU時間	22時間
使用メモリ	24.768 GB
ベクトル化率	99.67 %
並列化	4 並列

