

Ignition in boundary layer in a reactive oxy-hydrogen mixture

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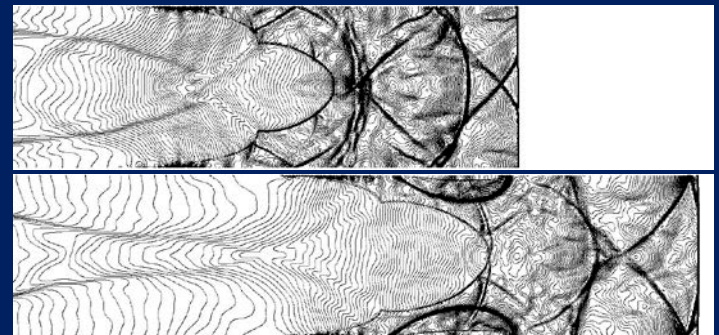
The purpose of this study is to explain how the shock wave-boundary layer interaction triggers an ignition in a boundary layer in a reactive oxy-hydrogen mixture when flame is propagating with the supersonic speed.

After auto-ignition a new flame is developed and it travels along the wall to eventually be the cause for a detonation.

In this study of stoichiometric oxy-hydrogen reactive flow an auto-ignition occurs in the boundary layer in front of the flame. After the precursor shock passes by specified measurement point, the shock waves, which are traveling between the precursor shock and the flame, are heating up the boundary layer and it causes the auto-ignition.

It was shown that shock wave-boundary layer interactions caused the auto-ignition in the boundary layer. Later on a new flame was developed on both wall (the top and the bottom one), changed its shaped, and collided in the middle of the tubes causing detonation.

利用した計算機	SX-9
CPU 時間	3x24時間
メモリ	30GB
ベクトル化率	80%
並列化	4並列



Shock-boundary layer interaction