## عنوان مقاله:

Premixed V-shaped Flame Response to Equivalence Ratio Perturbations: Investigations on the Flame Kinematics

## محل انتشار:

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## خلاصه مقاله:

The response of a rod-stabilized V-shaped premixed flame to upstream velocity and equivalence ratio perturbations was characterized as a function of excitation frequency. Self-excited oscillations in low emission, premixed combustion systems are often caused by feedback between unsteady heat release rates and reactive mixture equivalence ratio perturbations. This investigation shows that the heat release response of the flame is controlled by the superposition of three disturbances: heat of reaction, flame speed, and flame area. The first two disturbances are directly generated by equivalence ratio oscillations. The third is indirect, as it is generated by the flame speed fluctuations. Using an analytical model based on linearization of the G-equation for inclined flames, the kinematics of a V-flame anchored on a central obstacle is investigated. It is shown that V-flames behave as an amplifier in a certain .range of frequencies and they are more susceptible to combustion instabilities than the conical flames

## کلمات کلیدی:

Combustion instability- V-shaped flame- Equivalence ratio perturbations