عنوان فارسی مقاله:
اثرات میدان الکتریکی بر دینامیک احتراق چرخشی

عنوان انگلیسی مقاله:
ELECTRIC FIELD EFFECTS ON THE SWIRLING COMBUSTION DYNAMICS

توجه!
این فایل تنها قسمتی از ترجمه میباشد. برای تهیه مقاله ترجمه شده کامل با فرمت ورلد (قابل ویرایش) همراه با نسخه انگلیسی مقاله، اینجا کلیک کنید.
Experimental results and discussion

A series of experiments were carried out in order to examine the basic mechanisms, which control the combustion dynamics and the formation of polluting emissions, when the DC electric field is applied to the swirl stabilized near-premixed propane/air flame flow by enhancing or confining the axial and radial drift motion of the positively and negatively charged flame species, such as \( \text{C}_3\text{H}_3^+, \text{C}_2\text{H}_4^+, \text{C}_2\text{H}_2^+, \text{CHO}^+, \text{H}_3\text{O}^+, \text{O}_2^- \), etc. with mean density of charged flame species in a flame reaction zone up to \( n_{e,i} \approx 10^{18}-10^{19} \text{ m}^{-3} \). The elastic collisions between the field-enhanced the flame ions and neutral compounds result in momentum exchange by enhancing or confining the interrelated processes of heat/mass transfer in a field direction with direct influence on the flame shape and size (Fig.2) and so on the flame velocity, temperature and composition profiles, local rates of reactions and processes of heat/mass transfer.