عنوان مقاله:

Experimental study on temperature field of premixed H2/Air flame using Mach-Zehnder interferometry

محل انتشار:

بیست و هفتمین کنفرانس سالانه بین المللی انجمن مهندسان مکانیک ایران (سال: 1398)

تعداد صفحات اصل مقاله: 6

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خلاصه مقاله:

In this study, Mach-Zehnder interferometry (MZI) technique was conducted to visualize laminar premixed H2/air flame. The effect of two major parameters, equivalence ratio from 0.6 to 1.4 and Reynolds number from 200 to 600, on the flame structure and the flametemperature at the ambient condition of P=0.87atm and T=24°C is investigated experimentally. A slot burner was used to generate the flame. To validate the experiments, the maximum flame temperature which obtained by MZI technique compared with the adiabaticflame temperature that was calculated by CHEMKINPRO software, and satisfactory agreements were made two parties. The experiments of the present study show that the variation of the Reynolds number only affects the flame structure and the maximum flame temperature is not widely affected by this variation. By changing the Reynolds number from 200 to 600, the maximumchanging in the maximum flame temperature is 14°C at rich combustion mode. The results also indicate that the flame temperature and structure are extensively affected by the equivalence ratio. The maximum flame temperature takes .place at the stoichiometric mixture and by deviating from the stoichiometric mixture, the flame temperature is reduced

کلمات کلیدی:

Mach-Zehnder interferometry, Laminar flame, Premixed H2/air, Slot burner