

عنوان مقاله:

Determination of Shock Standoff Distance for Wedge at Supersonic Flow

محل انتشار:

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خلاصه مقاله:

An experimental investigation is conducted to calculate the shock standoff (SSO) distance in front of an acute-angled wedge. For this experimentation, simple water flows channel analysis is carried out. The flow velocity is varied from 13.2 cm/s to 25.5 cm/s increasing in steps of 1 cm/s. A velocity of 13.2 cm/s corresponds to Froude number 1.13 and velocity of 25.5 cm/s to Froude number 1.41. The Froude number ranged from 1.13 to 1.41 in steps of 0.04. The study is conducted on 5 mm thick acrylic sheets and of wedge angles 50°, 60°, and 75° to obtain a relation for calculating the SSO distance concerning the Froude number. It is found that the pressure uphill strongly depends upon the Fr and wedge angle. The SSO distance determined experimentally and using the proposed correlation are found to be in good agreement.

کلمات کلیدی:

Flow Channel, Shock Standoff, Supersonic flow, wedge

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