

عنوان مقاله:

Experimental Investigation on Steady Shock Structures in an Axisymmetric Supersonic Intake Using Image Processing Technique

محل انتشار:

بیست و پنجمین همایش سالانه مهندسی مکانیک (سال: 1396)

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خلاصه مقاله:

A Matlab Code was written in the field of image processing to study all kinds of shock structures in an axisymmetric supersonic intake for different conditions of the flow field. The purpose is to define different semiempirical correlations that illustrate the shock structure changes with respect to the different operating conditions using image processing of different shadowgraph images of the flow field around the intake. Different experimental data are used to provide some well-posed nondimensional experimental relations that could be used in different cases. The effect of mass flow ratio through the intake duct on the shock position was found to be very significant. As mass flow ratio increased, the normal shock was moved toward the intake and got thinner to pass through the intake throat. The curved shock which is defined by a hyperbola relation in each experiment, would get less eccentric as mass flow ratio increases.

کلمات کلیدی:

Supersonic Intake - External Compression-Shadowgraph-Angle of Attack-Mass Flow Ratio-Ovalness Factor

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/634603>

