

Abstract Submitted
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Microphone-array measurements of the surface-pressure field produced by oblique and normal impinging jets¹ A.M. NAGUIB, W. JIANG, K. ZHANG, Michigan State University, East Lansing, MI-48824, USA, M. EL-ANWAR, A.M. ABOUEL-FOTOUH, National Research Center, Giza, Egypt — The spatio-temporal, wall-pressure fluctuation generated by an axi-symmetric jet impinging on a flat wall is measured using a 30-microphone array. The focus of the study is the influence of the impingement angle on the strength, spatial distribution and space-time characteristics of the unsteady wall-pressure field. The investigation is conducted at jet Reynolds number of approximately 13000, based on jet diameter and three impingement angles: 0, 15 and 30 degrees. The results show that the impingement angle has strong influence on the level of pressure fluctuations, leading to large increase on the side where the flow experiences less turning (relative to normal impingement), and vice versa. Substantial influences are also found on the spatial characteristics and convection velocity of the pressure-generating flow structures. These effects and others will be presented and discussed in this talk.

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