

Flow-Excited Resonance of Trapped Acoustic Modes of Ducted Shallow Cavities

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Abstract :

Several gate valves in a nuclear power plant experienced strong acoustic resonance when the plant power was recently increased by about 15%. After a brief summary of this acoustic resonance problem is presented, a fundamental study of the excitation mechanism causing this resonance is reviewed. The talk will include both experimental and numerical investigations performed on an axisymmetric shallow cavity in a duct conveying air up to a Mach number of 0.4. The effect of counter-measure to suppress the excitation mechanism will also be addressed.