FLOW-EXCITED ACOUSTIC RESONANCE IN INDUSTRY

Mardi 7avril 10h00 Samir Ziada du Department of Mechanical Engineering,
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The excitation mechanism of acoustic resonances has long been recognized, but industry continues to be plagued by its undesirable consequences; manifested in severe vibration and noise problems in a wide range of industrial applications. The talk will focus on the nature of the acoustic resonance excitation mechanism and some basic design considerations to predict its onset and intensity. Two industrial examples involving flow-excited acoustic resonance of closed side-branches are presented. The first example deals with acoustic fatigue failure of the steam dryer in a boiling water reactor (BWR) due to acoustic resonance in the main steam piping system whereas the second example considers acoustic resonances in the roll posts of the STOVL Joint Strike Fighter (JSF). In both examples, effective means to alleviate the acoustic resonance mechanism are discussed.