



**Canadian Nuclear Society
Soci t  Nucl aire Canadienne
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FLOW-INDUCED VIBRATION IN TWO-PHASE FLOWS: SOME INTERESTING PHENOMENA

by

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Two-phase flow exists within many nuclear components such as steam generators, fuel channels, and piping systems. So far relatively little work has been done on two-phase flow-induced vibration, probably because it is difficult to do. Two-phase flows are not homogeneous and are governed by an additional parameter called void fraction. The latter can lead to different flow patterns or regimes that can change completely the vibration behaviour. A study of flow-induced vibration of piping elements in two-phase flow has revealed an unexpected resonance phenomenon related to the flow velocity.

Using specially developed fibre optic probes fluidelastic instability, random turbulence excitation, and detailed flow characteristics are all being investigated in tube bundles subjected to two-phase cross flow. Fluidelastic instability of a tube bundle preferentially flexible in the flow direction has been observed, probably for the first time. This is particularly relevant to the problem of in-plane vibration of nuclear steam generator U-tubes.

These and other studies have yielded interesting results but have raised more questions. The more puzzling results will be discussed in this presentation. Also, some of the dynamic phenomena will be illustrated by animation.

Date: **Thursday, January 29th**

Time: 12:00 noon.

NOTE: A light lunch with tea & coffee will be served. And its free!

Location Navy Mess 3rd floor (Crowsnest). Elevator is available.
78 Lisgar Street (corner of Lisgar and Cartier)

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- ALL WELCOME -