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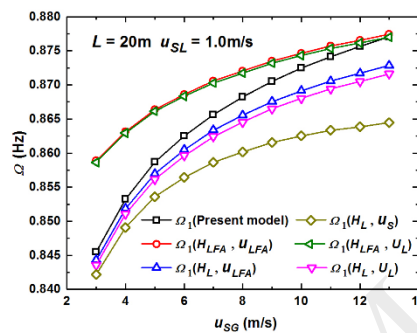
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Graphical abstract

The first mode of natural frequency obtained from various methods



Highlights

- Natural frequency of cantilevered pipes conveying slug flow is analyzed.
- Flow parameters varying with position and time are obtained.
- Intermittent feature of slug flow has a great influence on natural frequency.
- Selection of slug characteristic parameters is key to predict natural frequency.

Abstract

Intermittent feature of slug flow could lead to variations of flow parameters varying with time and position along the pipe, which may influence dynamic behaviors of the piping system a lot. By considering significance of intermittent characteristic for two-phase slug flow, a dynamic model of a cantilevered horizontal piping system conveying gas-liquid two-phase slug flow is established to

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