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Effect of Multiphase Fluid and Functionally Graded Density Fluid on the Stability of Spinning Partially-Filled Shells

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**Highlights**

- In this paper, The effect of a multiphase fluid, which includes the arbitrary number of liquid phases, and a functionally graded density fluid on the stability of rotating partially-filled cylindrical shells is investigated
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- The first-order shear shell theory for modeling the structural dynamics of the shell is used and according to the Navier-Stokes equations, a 2D model is introduced for fluid motion.
- The novelty of the paper is associated with analyzing the stability of spinning shells partially filled with the arbitrary number of liquid phases (multiphase fluid), and the effect of a functionally graded density fluid on the stability of the spinning partially-filled shells.

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