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Experimental Investigations of a Modified Taylor-Couette Flow

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Abstract : In this study the instability problem of a modified Taylor-Couette flow between two vertical coaxial cylinders of radius R1, R2 is considered. The modification is based on the wavy shape of the inner cylinder surface, where inner cylinders with different surface amplitude and wavelength are used. The study aims to discover the effect of the inner surface geometry on the instability phenomenon that undergoes Taylor-Couette flow. The study reveals that the transition processes depends strongly on the amplitude and wavelength of the inner cylinder surface and resulting in flow instabilities that are strongly different from that encountered in the case of the classical Taylor-Couette flow.

Keywords : hydrodynamic instability, Modified Taylor-Couette Flow, turbulence, Taylor vortices
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