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Enhancing Vortex Induced Vibration of a Circular Cylinder by Using Roughness Strips[1] ASHWIN VINOD, Missouri University of Science & Technology, Rolla, MO, ARINDAM BANERJEE, Lehigh University, Bethlehem, PA — The current experimental work focuses on studying the effects of surface roughness on vortex induced vibration (VIV) of an elastically mounted circular cylinder which is free to vibrate in a direction transverse to the flow. Our objective is to identify configurations which lead to high amplitudes of vibrations and a greater range of synchronization that can be successfully used for energy harvesting. Different configurations such as smooth cylinders, cylinder with zero roughness strips, and prescribed roughness (using sand paper) were used. Experiments were also conducted with the zero roughness strips at different angles around the cylinder to verify the effect of the position of the strip. All results were also found to be dependent on the spring stiffness. Variations were observed in the amplitude and frequency response profiles for the different cases investigated.

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