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**Flow around a cylinder fitted with strakes** JULIO R. MENEGHINI, RAFAEL S. GIORIA, NDF, Dept. Mech. Eng., Escola Politecnica, University of Sao Paulo — In this paper, we investigate numerically the mechanism of suppression of vortex-induced vibration by using helical strakes. Although the strakes effectiveness has been assessed, the suppression mechanism is yet not well established. Most works point out that the main aspect on the suppression is the decrease in the vortex shedding correlation along the span. The flow in the spanwise direction induced by the shape of the strakes is also another reason for suppression of vortex-induced vibration. Computational simulation of the flow around a fixed circular cylinder fitted with strakes are carried out for Reynolds number 1,000 and 10,000 in order to ratify that the main aspect on the suppression mechanism is the decrease in the vortex shedding correlation along the span. To support the latter allegation, we employ a spatial correlation of the mean velocity fields, and we also investigate the instantaneous resulting fluid forces on different sections along the body in comparison to experimental measurements. We also observe that the vortex wake is formed farther downstream and we can identify this as a secondary mechanism of vortex-induced vibrations suppression. A comparison of velocity fields from particle image velocimetry with the simulation results is presented in order to support the simulation analysis.

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