

An application of system identification in the two-degree-freedom VIV experiments^(PDF)

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Title: An application of system identification in the two-degree-freedom VIV experiments

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摘要: Experiments on the two-degree-freedom vortex-induced vibration (VIV) of a flexibly-mounted, rigid, smooth cylinder were performed at MIT. The research reported here is an analysis of the cylinder's trajectories. System identification methods were used to derive a best Fourier representation for these motions and to parse these motions into symmetric and asymmetric behaviors. It was postulated that the asymmetric behavior was due to distortions caused by the free surface and bottom used at the test facility, and that the symmetric behavior is representative of deepwater VIV. Further application of systems identification methods was used to associate the symmetric behavior and test conditions to a traditional vortex street model. These models were analyzed for their ability to predict details of VIV trajectories.

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备注/Memo: -

