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Probabilistic dynamical analysis of a marine riser. (English) Zbl 0536.76041

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This paper presents numerical techniques of modal and spectral probabilistic analysis applied to the study of vibrations of a marine riser. The latter is fixed to a tethered buoyant platform (or tension leg platform) and can be considered as a beam with variable normal force.

MSC:

76D99 Incompressible viscous fluids

74F10 Fluid-solid interactions (including aero- and hydro-elasticity, porosity, etc.)

76M99 Basic methods in fluid mechanics

70L05 Random vibrations in mechanics of particles and systems

Keywords:

modal and spectral probabilistic analysis; vibrations; marine riser; tethered buoyant platform; tension leg; variable normal force