

Statical Models to Illustrate Special Instabilities

Zsolt Gaspar

Budapest University of Technology and Economics, Budapest, Hungary

Simple statical models are useful to understand different types of elastic instability phenomena. There are well-known models in the literature to analyze the limit point, the asymmetric, the stable- and unstable-symmetric, the monoclinic, anticlinal and homeoclinic point of bifurcation. The paper shows models to illustrate some special instability. Three models belong to the cusp catastrophe. They have point-like instability, stable-X or unstable-X point of bifurcation, respectively. Two models illustrate classes of the double cusp catastrophes, where the homogeneous quartic parts of the potential energy functions have two distinct or two coincident real roots. The equilibrium paths of the perfect and some imperfect structures and some imperfection-sensitivity curves will be presented.

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