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The hanging thin rod: A singularly perturbed eigenvalue problem

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Abstract

We study the vibrations of a hanging thin flexible rod, in which the dominant restoring force in most of the domain is tension due to the weight of the rod, while bending elasticity plays a small but non-negligible role. We consider a linearized description, which we may reduce to an eigenvalue problem. We solve the resulting singularly perturbed problem asymptotically up to the first modification of the eigenvalue. On the way, we illustrate several important problem-solving techniques: modeling, nondimensionalization, scaling, and especially use of asymptotic series.

- **DÍA Y HORA: jueves 2 de diciembre de 2010 a las 12:30**
- **LUGAR: Edificio Sabatini. Aula 2.1.D04**