

CHAPTER OVERVIEW

7: Deformations and Elasticity

The objective of this chapter is a brief discussion of small deformations of $3D$ continua, with a focus on the elastic properties of solids. The reader will see that such deformations are nontrivial even in the absence of their time evolution, so that several key problems of statics will need to be discussed before proceeding to such dynamic phenomena as elastic waves in infinite media and thin rods.

[7.1: Strain](#)

[7.2: Stress](#)

[7.3: Hooke's Law](#)

[7.4: Equilibrium](#)

[7.5: Rod Bending](#)

[7.6: Rod Torsion](#)

[7.7: 3D Acoustic Waves](#)

[7.8: Elastic Waves in Thin Rods](#)

[7.9: Exercise Problems](#)

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