

## Mechanics of Continua

*Dima Geshkenbein*

1.  
Introduction. Strain and stress tensors. Hooke's law
2.  
Thermal expansion. Elasticity of crystals.
3.  
Bending of rods.
4.  
Point force applied to the surface.
5.  
Elastic waves
6.  
Dislocations.
7.  
Hydrodynamics, basic equations.
8.  
Conservation laws and simple flows.
9.  
The force acting on the body in potential flow.
10.  
Viscosity
11.  
The laminar wake.
12.  
Gravity waves.
13.  
Sound.
14.  
Turbulence.

## **Recommended Literature**

L. D. Landau and E. M. Lifshitz, Course of theoretical physics  
Volume 7, "Theory of elasticity"  
Volume 6, "Fluid mechanics "

Gregory Falkovich  
"Fluid Mechanics : A Short Course for Physicists"