

Physics 136b, Week 4: Foundations of Fluid Mechanics

(Dated: due Feb 1, 2012)

The maximum number of points you can get for this assignment is **50**, although you could choose to do problems that worth more than 30 points.

This week we discussed elastodynamics, covering 13.1–13.7 of Blandford and Thorne (BT). [See version 1113.1.K of Chapter 13.]

1. **Shape of a constant density, spinning planet.** Exercise 13.5 of BT. [15 Points]
2. **Crocco's Theorem.** Exercise 13.9 [15 Points]
3. **Gravitational Energy of a Fluid.** Exercise 13.13 [15 Points]
4. **Kinematic interpretation of Vorticity.** Exercise 13.15 [10 Points]
5. **Entropy Increase in a non-ideal fluid.** Exercise 13.17 [15 Points]