

Assignment 7

Special and General Relativity

Readings

- Kogut ----- Chapter 7.7-7.9: General Relativity
- Chapter 8: Examples of General Relativity
- Ellis/Williams - Chapter 5.9-5.12: Curved Spacetimes
- Chapter 6: Spherical and Stellar Collapse
- Chapter 7: Cosmology

Problem Assignments

Everyone Problem Assignments(hand in at start of seminar)

- Ellis 6.1 Coordinate velocity
- Ellis 6.5 Light rays and black holes
- Ellis 7.4 Time intervals
- Ellis 7.10 Size of particle horizon

Individual Problem Assignments

- Ellis 6.2 Redshift _____
- Ellis 6.3 Curvature _____
- Ellis 6.7 Radial geodesic _____
- Ellis 6.8 Galaxy collapse _____
- Ellis 7.1 Fundamental observer _____
- Ellis 7.2 Balloon model works? _____
- Ellis 7.3 Hubble constant _____
- Ellis 7.6 Area distance _____
- Ellis 7.8 Number counts _____
- Ellis 7.11 Steady-state universe _____
- Ellis 7.12 Number of images _____

Subject Presentations (5 minutes)

- Schwarzschild solution _____
- Bending of light _____
- Black Holes _____
- Spacetime geometry _____

Evolution of universe

Observable quantities

Horizons
