

Space: Its Light , Its Shape.

Cosmology: The Shape of Space I

Assignment: Discussion starts Wednesday, April 27

- Read Weeks chapter 19 for pleasure and enjoyment. Read chapter 21 for seminar discussion.
- Please feel free to bring up other issues you find interesting or puzzling. If at all possible send an email before seminar to me. I will present this topic as my assignment or open it up to discussion by the whole seminar.
- Some of these require additional reading for the presenting team. If I don't explicitly give the reference then the additional information is easy to find on the internet.
- Though everyone is responsible for reading all of the material and for working out all of the exercises, teams have been specific material and exercises for which they are responsible in class presentations. You may want to come to class early to firm up and smooth out the exercises with your teammates.

Chapter 21

Team 1: Use Weeks's online visualization tools to demonstrate how "easy" it should be to figure out what space we live in. I try to arrive early to confirm that the software is working on the PC (or download it).

Team 2: Describe what actually happens when we look far away, i.e. explain why it is not so easy to determine what space we live in.

Team 3: Use the internet to find galaxy "baby" and "adult" pictures. Display them and discuss the differences briefly.

Team 4: Exercise 21.1

Team 1: Present the Lachieze-Ray, Lehoucq, and Luminet [Blake, perhaps you can help us with the pronunciation!] method and exercise 21.2. Present the material on pages 287 and 288.

Team 2: What is a Poisson distribution?
(Try looking it up on <http://mathworld.wolfram.com/>.)

Team 3: Discuss with the seminar the problem and resolution for cosmic crystallography (page 289).

Team 4: Lead a discussion of the downsides to cosmic crystallography (pages 290-293).

Team 1: We now have access to the first data release of the Sloan Digital Sky Survey. What do we have to do to use the SDSS and cosmic crystallography to look for a multiconnected universe?