

1 Weekly main assignment for week 9 AST3220

Prepare for class (to be discussed in plenary)

Write a summary of the standard model of particles. The summary should answer the following questions:

- a) What particles does the standard model of particles contain?
- b) What are antiparticles and what antiparticles do the particles have?
- c) What forces affect them? How are forces mediated?
- d) What are fermions and bosons? What is spin?
- e) What are hadrons, leptons, mesons, baryons and gauge bosons? What do astronomers mean by the word baryons?
- f) What are generations? Mass hierarchy?
- g) What conserved quantities does the standard model include?
- h) What transitions does it undergo with the flow of time and decreasing temperature?
- i) Is the standard model a quantum theory? Does gravity have a quantum description? What is the Planck scale?

Prepare or at least look at before class

Exercises 2.1, 2.3 and 2.5 in the lecture notes.