PY 542: Non-Equilibrium Statistical Physics   Problem Set 12, Fall 2011

Reading: For this last week of the course, we will discuss the kinetic approach to complex networks. please read chapter 14 of the text.

Final Project Reminder: The final projects will be due at the final session on Friday December 16. This session will be held in SCI 328, the seminar room near my 3rd-floor office. Please keep the period 10am–2pm available to be the audience for the oral presentations of the final projects. I will converge on a precise time during the week. Let me remind you about some guidelines for these projects:

- The final project should consist of a written section that should be no longer than 6 pages in 2-column revtex format (which looks like Physical Review Letters). There should also be an oral part of the presentation should be last 15 minutes. This oral presentation time should be divided equally among the team members.

- The project itself need not be a publishable result. It could be a small-scale simulation or a theoretical calculation of some non-equilibrium phenomenon or a detailed exploration of some of the open-ended problems in the text.

- If you need guidance or have questions, please feel free to come to my office.

Problem: Due Monday, December 13 by 5:00pm.

1. Text 14.12. For this problem, please derive the exact degree distribution and then the asymptotic form of the degree distribution. For the latter, you will need the following identity for the gamma function:

$$\frac{\Gamma(x + a)}{\Gamma(x)} \to x^a$$

in the limit $x \to \infty$.