

PY 542: Non-Equilibrium Statistical Physics Problem Set 7, Fall 2011

Reading: This week we will complete our discussion of aggregation on Tuesday, including gelation phenomena, aggregation with steady input, and a brief treatment of the island growth model. Please finish reading sections 5.1–5.5 of the text. On Thursday, we begin treating adsorption phenomena. Please start reading section 7.1 of the text.

Reminder: An in-class midterm will be given on Thursday October 27. I've posted the PY 542 midterms from fall of 2008 and fall of 2007 for practice. As I mentioned in lecture, there will be one problem that involves applying a scaling ansatz to a system that you have not yet encountered.

Problems: Due Monday, October 24 by 5:00pm.

1. Text 5.8. The point of this problem is to solve constant-kernel aggregation with steady input by working with the master equations as a function of time and not resorting to generating function methods.
2. Text 5.10. Please notice that in the presence of a steady input, the quantity $\sum k c_k$ is no longer equal to one.