

# General Mathematics and Computational Science II

## Exercise 6

February 20, 2007

Write a computer program in a language of your choice (Mathematica or Matlab will work well for this purpose) to simulate either the Kac ring or the Ehrenfest urn model. Your solution should contain:

- The evolution of one of the macroscopic quantities (e.g.  $\Delta$  for the Kac ring or  $D$  for the Ehrenfest model) as a function of time. (As a graphical print-out or as a number table.)
- Some investigation of the behavior when  $N$  gets large.
- A concise description of the result, in particular a comparison with the ensemble averaged behavior derived in class (for the Kac ring) or in the previous homework (for the Ehrenfest model).