

Homework 11.

1. A bead with a charge  $q$  can slide without friction on a thread of a length  $2L$  between two small balls fixed at the ends of the thread. The balls have charge  $Q$  each. The position of stable equilibrium for the bead is in the middle of the thread. a) Find the dependence of the potential energy of the bead as a function of small displacement  $x$  of the bead from the middle of the thread. b) Find the period of the oscillations of the bead (suppose that the amplitude is very small).

