Suspensions and polymer solutions

Exercise 1

23 October 2006

1. Derive the expression for the Debye screening length in a general electrolyte, containing any number of different ions, each having valence z_i and bulk concentration c_i.

2. (a) Generalize the Derjaguin approximation to the case of two spherical particles of unequal radii, a and b.

   (b) Use the result to derive the expression for the force between a sphere and a planar surface.