998-35-15　　　　　　**M. Rodrigo*** (`mrocha@itam.mx`) and **M. A. Herrero** (`Miguel_Herrero@mat.ucm.es`).
Dynamics and Exact Solutions of Smoluchowski's Equations with Diffusion.

We consider the dynamics of some initial and initial-boundary value problems for Smoluchowski's equations with diffusion. More specifically, we look for time-global upper and lower bounds for the solutions of each of these problems. The asymptotic behavior of the solutions follows directly from these bounds. The bounding functions satisfy nonlinear, but linearizable, partial differential equations. We also look for exact stationary and nonstationary solutions of the infinite system under consideration. (Received December 12, 2003)