COLLOQUIUM

Coagulation, Gelation and Smoluchowski Equation

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The Smoluchowski equation is a system of partial differential equations that describes the evolving densities of a system of diffusing particles that are prone to coagulate in pairs. Two important parameters are the diffusion coefficients and the coagulation propensities. When diffusion coefficients are uniformly positive and coagulation propensities grow faster than linearly as the mass sizes get large, gels are formed instantaneously and Smoluchowski's equation no longer describes the macroscopic evolution of densities. In terms of the macroscopic densities, the absence of gels is equivalent to the conservation of mass. In this talk I give an overview of the existing results on Smoluchowski Equation and formulate some open problems on the question of the formation of gels.

The lecture will take place in Thackeray 704 at 3:30pm.
Refreshments will start at 3:00pm.