TIFR Centre for Interdisciplinary Sciences
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Internal Seminar

Modelling aggregation and fragmentation phenomena using the Smoluchowski equation

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In nature, there are a number of physical phenomena whose dynamics are dominated by transport, aggregation and fragmentation. Examples include formation of rain drops, polymerization and the formation of the planetary rings. In this talk, I will present results from an analysis of a model with collision dependent fragmentation, based on the Smoluchowski equation. For a general class of collision kernels, I will derive the scaling limits of the mass distribution using moment and singularity analysis of the generating functions, and exact solutions for special cases. We will identify a new regime (relevant for ballistic collision) where the exponents depend non-trivially on the kernel.

Tuesday, Apr 19th 2016

2:00 PM (Tea/Coffee at 1:45 PM)

Seminar Hall, TCIS