

Seminar

Lie Algebras in Fluid Mechanics and Some Toy Models

Sarada G Rajeev

University of Rochester, NY

Despite being known for more than a century, the Euler/Navier-Stokes equations contain some of the deepest unsolved problems in physics. It is not known yet if smooth initial data can evolve into singularities; and the phenomenon of turbulence has defied a fundamental explanation. Even if they are separate problems, progress in one is likely to influence thinking about the other.

I will quote some experimental observations (“dissipation anomaly”) that indicate indirectly that there will be singularities in Euler/Navier-Stokes evolution. And present some toy models that have been devised to understand these problems. Lie algebras, which have been very useful in particle physics, could be quite useful here as well.

Tuesday, Apr 21st 2026

11:30 Hrs (Tea / Coffee 11:15 Hrs)

Auditorium, TIFRH