PMRF-ISSS Teaching Programme
Prime Minister Research Fellowship students' teaching requirement
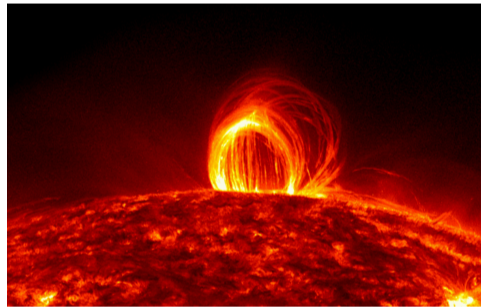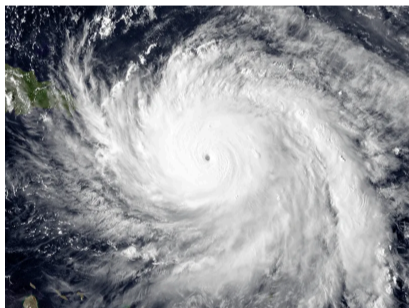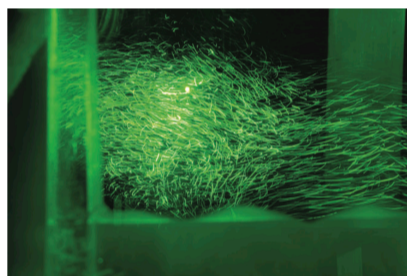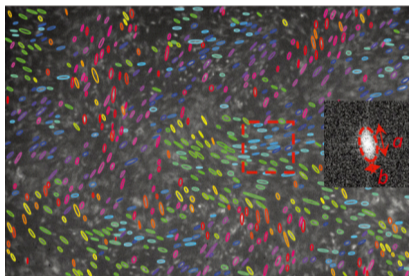facilitated by the Institute of Smart Structures and Systems

Module PMRF-ISSS0132/II/2024

Statistics of turbulent flows

Name of the PMRF student

Sadhitro De

Required background of the students taught

Physics, Atmospheric sciences,
Aerospace engineering,
Mechanical engineering,

Details of the content of the module

- Introduction to turbulence across various systems and disciplines

- Equations of hydrodynamics
  — Formulation, symmetries, conservation laws
  — Scale-by-scale energy budget

- Phenomenology of turbulence
  — Kolmogorov's theory
  — An exact relation and experimental laws

- Beyond Kolmogorov
  — Intermittency of turbulence
  — Multifractal models of turbulence

- Two-dimensional turbulence

- Strongly compressible turbulence

- The Burgers equation — a simplified model of compressible turbulence

- Dispersion of particles in turbulent flows

- Numerical algorithms to simulate turbulence

Schedule of the module

Course Duration: 16/08/24 to 26/08/24 (tentative)

Lecture days: Fri, Sat, Sun, Mon

Time: 11:30 am to 1:30 pm on each day

(Under unforeseen circumstances, recorded lectures will be uploaded)

Meeting link : Will be shared later

Link

Contact email ID: isss.forum@gmail.com

 Registration link: https://forms.gle/qzBbDM5fh6erDa8C9