

SUGAN D MURUGAN

Research Scholar

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Bangalore, India



EDUCATION

Ph.D.* in Physics

**International Centre for Theoretical Sciences,
Tata Institute of Fundamental Research**

Aug 2017 – Present

Bangalore

Thesis title: Singularities in Ideal Hydrodynamical Equations
Prof: Samriddhi Sankar Ray

B.Tech. in Mechanical Engineering

Indian Institute of Technology, Madras

Aug 2009 – Aug 2013

Chennai

PUBLICATIONS

Journal Articles

- Murugan, Sugan D. et al. (Aug. 2020). "Suppressing thermalization and constructing weak solutions in truncated inviscid equations of hydrodynamics: Lessons from the Burgers equation". In: *Phys. Rev. Research* 2 (3), p. 033202. DOI: 10.1103/PhysRevResearch.2.033202. URL: <https://link.aps.org/doi/10.1103/PhysRevResearch.2.033202>.

PROJECTS

Shell model of Turbulence

Under Prof. Samriddhi Sankar Ray

2018

Demonstrating the famous K41 energy spectrum and intermittent dissipation via Numerical Simulations in the GOY shell model.

Study of Inertial Particles near Vortical region

Under Prof. Rama Govindarajan

2019

A study on how heavy inertial particles with various stokes number, evolve in a region of multiple gaussian vortices using a FTLE tool from Dynamical Systems.

Study of Thin Soap films

Under Prof. Rama Govindarajan

2019

Set up a laboratory experiment to study the 2D turbulent and laminar flow in thin soap films and various phenomena associated with it.

Numerical Simulation of EDQNM

Under Prof. Samriddhi Sankar Ray

2019

Code for solving the Eddy Damped Quasi Normal Markovian model of closure for the Navier Stokes equation.

COURSES

In Ph.D*

📅 Only selected

- Advanced Statistical Mechanics
- Dynamical Systems
- Classical Field Theory
- Turbulence - Modern Approach
- Classical Mechanics - Mathematical Approach
- Quantum Field Theory
- General Relativity

ACADEMIC ACHIEVEMENTS



AIR 643

IIT-JEE 2009



AIR 186

AIEEE 2009



AIR 5

JEST (Physics) 2017



AIR 32

JAM (Physics) 2017

PROGRAMMING

Fortran

Python

MATLAB

Mathematica

ABOUT ME

“An avid doctorate student in Physics, hopefully a Professor someday. Currently working on fundamental problems in Hydrodynamics and Turbulence. Interested in mathematical fluid dynamics. Passion for fitness and football”

WORK EXPERIENCE

Physics and Maths Tutor

EDUSOL private coaching center

📅 June 2016 - June 2017

📍 Chennai

- IIT-JEE coaching to 11th and 12th class students.
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Asst. Manager

Energo Engineering Projects Ltd

📅 June 2013 - Oct 2015

📍 New Delhi

- Commissioned Ash Handling System in 2X500 MW thermal power plant in Tuticorin.

INTERESTS

Calisthenics

Football

Gym

Graphic Designing

Harmonica

LANGUAGES

Tamil



English



Hindi



Telugu



Kannada

