

CMIT S^3 — Online Talks

Organised by: Club of Mathematics, IISER Thiruvananthapuram

On the occasion of the third foundation anniversary.

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Title and abstract of talks

Talk 01 : 06th October, 2021

Time: *Afternoon, 02:30 PM IST*

Speaker: Dr. Saikat Chatterjee, IISER Thiruvananthapuram

Title: Semi-direct product of categories and a Schur's lemma for categorical representations

Abstract: We develop a theory of twisted actions of categorical groups using a notion of semi-direct product of categories. Turning to representations, which are actions that respect vector space structures, we establish an analog of Schur's lemma in this context. The talk will require familiarity with basic definitions of category theory and group actions.

Talk 02 : 09th October, 2021

Time: *Afternoon, 03:00 PM IST*

Speaker: Dr. Manil T Mohan, IIT Roorkee

Title: Navier-Stokes equations: Existence, Uniqueness and Smoothness Problem

Abstract: The Navier-Stokes equations describe the motion of viscous fluids, which can be expressed mathematically in terms of conservation of momentum and conservation of mass for Newtonian fluids. A fundamental problem in analysis is to decide whether smooth, physically reasonable solutions exist for the three-dimensional Navier-Stokes equations (Navier-Stokes existence and uniqueness problem). In May 2000, the Clay Mathematics Institute announced this problem as one of its seven Millennium prize problems in Mathematics. The aim of this talk is to shed light on this million dollar open problem in Mathematics.