University of Mumbai

National Science Day Celebration

28th Feb. 2022

(3.30 pm to 7. 30 pm)

Organized by

Department of Mathematics

University of Mumbai

Online Platform: Join Zoom Meeting

https://us02web.zoom.us/j/83117644836

Program Schedule

3.30 pm	Joining to Zoom Meeting
3.45 pm	Welcome address: Prof. Vinayak Kulkarni, Convenor, NSD
3.50 pm	Address on Theme: Prof. R. M. Pawale, Head of the Department
3.55 pm	Inaugural Speech: Prof. Anuradha Majumdar, Dean Science & Tech.
4.00 pm to 5. 30 pm	Invited Talk I: Prof. Santwana Mukhopadhyay, IIT, BHU
5.45 pm to 7.15 pm	Invited Talk II: Prof. Dinesh Thakur, University of Rochester, USA
7.15 pm	Vote of thanks: Dr. Anuradha Garge, Co-convenor, NSD

Dr. R. M. Pawale, Head, Department of Mathematics

Dr. Vinayak S. Kulkarni, Convenor, National Science Day

Dr. Anuradha Garge, Co-convenor, National Science Day

Invited Talk I

Prof. Santwana Mukhopadhyay
Department of Mathematical Sciences, Indian Institute of Technology (BHU), Varanasi.

Title : Coupled thermoelasticity under non-Fourier heat conduction models : Mathematical analysis of a recent theory

Abstract: "Coupled theory of thermoelasticity" is the subject that takes into account of the fact that non uniform changes in temperature in deformable body affect the state of strain and stress of the body and conversely any mechanical load as well as corresponding stress cause a temperature change in the body. Thermoelasticity theory therefore deals with the mutual interactions between temperature and strain fields in an elastic medium. The heat conduction equation plays very important role in studying any problem of thermoelasticity. It is well known that the classical heat conduction equation (diffusion equation) that is based on Fourier law of heat conduction has been widely and successfully applied to the conventional heat conduction problems. However, it has been realized in recent years that it is applicable only to the problems involving large spatial dimension and long time response. Otherwise, it yields unacceptable results in situations that involve extreme thermal gradients, high heat flux conduction and short time behavior, such as laser-material interactions. In order to overcome such issues related to Fourier law, serious efforts are being made during last few decades and several non-classical heat conduction theories have been proposed accordingly. The thermoelasticity theories developed on the frame of such non-Fourier heat conduction theories have been the centre of active research in recent times. The purpose of present lecture will be to demonstrate how mathematics can be helpful to present qualitative analysis of any such modified thermoelasticity theory. Some interesting results on the recently developed Moore-Gibson Thompson thermoelasticity theory will be discussed.

Invited Talk II

Prof. Dinesh Thakur, University of Rochester, USA

Title: What are numbers?

Abstract: We will explore various aspects of this fundamental notion.