

IISER-ICTS WINTER SCHOOL ON STOCHASTIC ANALYSIS AND CONTROL OF FLUID FLOW

Date: December 3 – December 20, 2012

Venue: Seminar Room, School of Mathematics

Indian Institute of Science Education and Research Thiruvananthapuram

CET Campus, Sreekariyam

Thiruvananthapuram 695016, Kerala

www.iisertvm.ac.in

1. SCHEDULE OF LECTURES

First week (Dec 3 - Dec 8, 2012)

Inaugural Programme - December 3, 2012

Registration: 8:30 AM - 9:00 AM

Inauguration: 9:00 AM - 9:15 AM by Professor E D Jemmis, Director, IISER TVM

High Tea: 9:15 AM - 9:45 AM

Inaugural Lecture: 9:45 AM - 11:00 AM by Professor Adi Adimurthi, TIFR CAM

Day Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
9:00 AM - 10:30 AM	See Inaugural Programme	Adimurthi	Adimurthi	Shaiju	Mrinal Ghosh	Sritharan
10:30 AM - 11:00 AM	See Inaugural Programme	Tea Break	Tea Break	Tea Break	Tea Break	Tea Break
11:00 AM - 12:30 PM	Ruediger	Ruediger	Ruediger	Ruediger	Shaiju	Sritharan
12:30 PM - 2:00 PM	Lunch Break	Lunch Break	Lunch Break	Lunch Break	Lunch Break	Lunch Break
2:00 PM - 3:00 PM	Nandakumaran	Nandakumaran	Nandakumaran	Mrinal Ghosh	Suresh K	
3:00 PM - 3:30 PM	Tea Break	Tea Break	Tea Break	Tea Break	Tea Break	
3:30 PM - 4:30 PM	Nandakumaran	Nandakumaran	Nandakumaran	Mrinal Ghosh	Ruediger	
4:30 PM - 4:45 PM	Break	Break	Break	Break	Break	
4:45 PM - 6:00 PM	Tutorial - Adimurthi	Tutorial - Adimurthi	Tutorial - Adimurthi	Tutorial - Ruediger	Tutorial - Ruediger	

Adimurthi: *Basics of functional analysis, Sobolev spaces, embedding theorems, Lax Milgram theorem*

Mrinal Ghosh: *Controlled diffusion processes*

Nandakumaran: *An Introduction to deterministic optimal control and controllability*

Ruediger: *Stochastic Integration & SDEs*

Shaiju: *Deterministic viscosity solutions*

Sritharan: *Introduction to deterministic and stochastic Navier-Stokes equations*

Suresh K: *Stochastic viscosity solutions*

Schedule of Lectures - Second week (Dec 10 - Dec 15, 2012)

Time \ Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
9:00 AM - 10:30 AM	Adimurthi	Raymond	Raymond	Raymond	Discussion Meeting (see schedule below)	Tutorial Day (conducted by Sritharan and Sundar)
10:30 AM - 11:00 AM	Tea Break	Tea Break	Tea Break	Tea Break		
11:00 AM - 12:30 PM	Sritharan	Sritharan	Sundar	Protas		
12:30 PM - 2:00 PM	Lunch Break	Lunch Break	Lunch Break	Lunch Break	Lunch Break	Lunch Break
2:00 PM - 3:30 PM	Raymond	Sundar	Protas	Discussion Meeting (see schedule below)	Kovalam Trip & Conference Dinner	
3:30 PM - 4:00 PM	Tea Break	Tea Break	Tea Break			
4:00 PM - 5:30 PM	Suresh K	Participant Presentations	Participant Presentations			

Adimurthi: *Introduction to the semigroup theory*

Protas: *Applications of optimization and control methods in fluid mechanics*

Raymond: *Deterministic control in fluid*

Sritharan: *Stochastic Navier-Stokes equations - solvability & control*

Sundar: *Invariant measures and ergodicity for stochastic Navier-Stokes equations*

Suresh K: *Stochastic viscosity solutions*

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Discussion Meeting Schedule (Dec 13 - Dec 14, 2012)

Thursday, 13 Dec 2012

2:00 PM - 3:00 PM: Prof. Mythily Ramaswamy

3:00 PM - 3:30 PM: Tea Break

3:30 PM - 4:30 PM: Prof. Vivek S Borkar

4:30 PM - 4:45 PM: Break

4:45 PM - 5:30 PM: Dr. Sakthivel Kumarasamy

Friday, 14 Dec 2012

9:00 AM - 10:00 AM: Prof. M Vanninathan

10:00 AM - 10:30 AM: Tea Break

10:30 AM - 11:30 AM: Prof. K Balachandran

11:30 AM - 11:45 AM: Break

11:45 AM - 12:45 PM: Prof. Adimurthi

12:45 PM - 2:00 PM: Lunch Break

2:00 PM - 3:00 PM: Prof. Raju K George

3:00 PM: Trip to Kovalam Beach. Bus will start from IISER gate.

6:00 PM - 10:00 PM: Dinner at Hotel Uday Samudra, Kovalam.

Schedule of Lectures - Third week (Dec 17 - Dec 20, 2012)

Time \ Day	Monday	Tuesday	Wednesday	Thursday
9:00 AM - 10:30 AM	Brzezniak	Brzezniak	Brzezniak	Brzezniak
10:30 AM - 11:00 AM	Tea Break	Tea Break	Tea Break	Tea Break
11:00 AM - 12:30 PM	Sundar	Sundar	Sritharan	Sritharan
12:30 PM - 2:00 PM	Lunch Break	Lunch Break	Lunch Break	Lunch Break
2:00 PM - 3:30 PM	Ravindran	Ravindran	Ravindran	Ravindran
3:30 PM - 4:00 PM	Tea Break	Tea Break	Tea Break	Tea Break
4:00 PM - 5:30 PM	Romito	Romito	Romito	Romito

Brzezniak: *Landau-Lifshitz-Gilbert equations*

Ravindran: *Numerical Methods for Navier-Stokes Equations - Model Reduction, Control and Random Inputs*

Romito: *Densities for the Navier-Stokes equations with noise*

Sritharan: *Stochastic Navier-Stokes equations - solvability & control*

Sundar: *Invariant measures and ergodicity for stochastic Navier-Stokes equations*