

Modules and Breakup Theme summary for NCM Workshop on Control of PDE

- (1) Semigroup Theory, Unbounded operator and its adjoint. Time dependent Sobolev space $C([0; T]; H)$ and definition of C_0 semigroup, generator, $C(0; T; D(A))$ solution, Lumer Philips, Adjoint semigroup, Regularity results - $C(0; T; H)$ solution and for self and skew adjoint operators.
Speaker: Mrinmay Biswas,
- (2) Abstract Control System, Duality between control and observation, Time dependent Sobolev space $L^p(0; T; X)$: Observability for Heat, Transport and Wave, controllability of transport equations
Speaker: Shirshendu Chowdhury
- (3) Fourier Series Method - Moment Method, Parabolic and Hyperbolic Ingham inequality to prove observability
Speaker: Rajib Dutta
- (4) Multiplier Methods -Wave equation, Carleman for Heat, Lebeau-Roobbiano method, Nonlinear system (Source term and Fixed Point)
Speaker: Debayan Maity
- (5) Stability and Stabilizability Abstract formulation of Stabilization, Stabilizability of Heat equation using finite dimensional Feedback Ricatti based feedback, Stabilization for Wave equation, Approximate and Null controllability, Relation between Optimal control and Stabilization.
Speaker: Debanjana Mitra
- (6) Optimal Control of Heat and Wave equation, First order and Second order optimality conditions, Regularity of control via optimality system, Connection with Abstract Lagrange Multiplier Method .
Speaker: Dharmatti Sheetal