CHAPTER 29

MATHEMATICAL SCIENCES
MATHEMATICS

Doctoral Theses

344. BANSAL (Seema)
Modelling of Bubble Motion in An Incompressible Fluid.
Supervisor : Dr. Dinesh Khattar
Th 19964

Contents

1. Introduction. 2. Under-water explosion giving rise to a spherical gas bubble. 3. Modeling of bubble motion in two dimensional space. 4. Modeling of bubble motion in an inviscid fluid. 5. Asymptotic stability of an expanding bubble in the rayleigh-plesset model. 6. Chaos in a class of nonlinear differential systems. Appendices and references.

345. GOPAL (Venu)
Numerical Treatment for the Solution of Multi-Dimensional Second Order Nonlinear hyperbolic Equations.
Supervisors : Prof. R.K. Mohanty and Dr. L.M. Saha
Th 19968

Contents

1. Second Order partial differential equation and finite difference methods. 2. An off-step discretization for the solution of 1-D nonlinear wave equations with variable coefficients.3. High accuracy arithmetic average type discretization for the solution of two-space dimensional nonlinear wave equations. 4. An off-step high order approximation for the solution of three-space dimensional nonlinear wave equations. 5. High accuracy cubic spline finite difference approximation for the solution of one-space dimensional nonlinear wave equation. 6. High accuracy non-polynomial parametric spline methods for the solution of one space dimensional nonlinear hyperbolic equations with significant first order space derivative term. References.

346. KASHYAP (Neeru)
Study of Weyl-Type Theorems for Operators.
Supervisor : Dr. Anuradha Gupta
Th 19966

Contents

1. Introduction. 2. Variants of weyl-type theorems . 3. Weyl-type theorems for direct sums. 4. Class A (k) operators. 5. Weighted B-weyl's spectrum. 6. Further scop of research. Reference

347. KATHURIA (Ritu)
Study of Slant Weighted Toeplitz Operators.
Supervisors : Prof. S.C. Arora and Prof. B.K. Dass
Th 19967

Contents

1. Introduction. 2. Weighted toeplitz operators. 3. Slant weighted toeplitz operators. 4. Generalized slant weighted toeplitz operators. 5. Compressions of slant weighted toeplitz operators. 6. Further scope of study. References.

348. MEHTA (Samridhi)
Stochastic Scrambling of Sensitive Data Using Rendomized Response Models.
Supervisors : Prof. B.K.Dass and Prof. Sat Gupta
Th 19969

Contents

1. An overview. 2. Two-stage additive optional randomized response models. 3. Generalized scrambling in two- stage randomized response models. 4. Multi-stage randomized response models. 5. Importance of model instructions and respondent privacy. 6. More simulation results & SAS codes. Concluding remarks and references.

349. PRASAD (Sadanand)
On Evolutionary Behaviour and Chaos Measure in Discrete Dynamical Systems
Supervisors : Dr. L.M. Saha and Prof. R.K. Mohanty
Th 19965

Contents

1. Introduction. 2. Measuring chaos in one dimensional discrete systems. 3. Measuring chaos in two dimensional discrete systems. 4. Interesting dynamic behavior in population evolution of some discrete systems. 5. Application of indicators in discrete maps. References.

350. RANA (Navneet Singh)
On Non-Binary Optimal and Generalized Reed-Muller Codes.
Supervisors : Prof. B. K. Dass and Dr. V. K. Tryagi
Th 20274

Contents

1. Introduction. 2. A family of non-binary (b_1,b_2)-optimal codes. 3. Blockwise burst error correcting codes. 4. Non-existence of some optimal and perfect codes. 5. Generalized reed-mullar codes. References.