UNIVERSIDADE FEDERAL DE SANTA CATARINA
CENTRO DE CIÊNCIAS FÍSICAS E MATEMÁTICAS
POS-GRADUAÇÃO EM MATEMÁTICA PURA E APLICADA

MTM510026 Infinite Dimension Space Attractors

Pre-requisite: MTM510012 Distribution Theory and Sobolev spaces; MTM510013 Theory of Semigroups and Applications in PDE or MTM510018 Nonlinear Partial Differential Equations.

Weekly lesson hours: 06h

Discipline syllabus: Existence of global attractor. Attractors for differential equations in spaces of infinite size. Dimension of the attractor. Regularization and approximation of attractors.

BIBLIOGRAPHIC REFERENCES

Text book:

1. R. Temam, Infinite-dimensional dynamical systems in mechanics and physics, Springer, 1997.

COMPLEMENTARY BIBLIOGRAPHY

1. P. Constantin, C. Foias, Navier-Stokes Equations, Chicago Lectures in Mathematics, The University of Chicago Press, 1988.
2. N. I. Karachalios, N. Yannacopolos, Global existence and compact attractors for the discrete nonlinear Schrödinger equation, Journal of Differential Equations 217 (2005), 88-123.
3. O. Ladyzhenskaya, Attractors for Semigroups and Evolution Equations, Cambridge University Press, 1991.
4. M. Nakao, Global attractors for nonlinear wave equations with nonlinear dissipative terms, Journal of Differential Equations 227 (2006), 204-229.
5. J. C. Oliveira, J. M. Pereira, Global attractors for a class of nonlinear lattices, Journal of Mathematical Analysis and Applications 370 (2010), 726-739.
6. J. C. Robinson, Infinite-Dimensional Dynamical Systems: an introduction to Dissipative Parabolic PDEs and the Theory of Global Attractors, Cambridge University Press, 2001.
7. S. Zhou, Attractors for second-order lattice dynamical systems with damping, Journal of Mathematical Physics 43 (1) (2002), 452-465.