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

MTM410055 Symbolic Dynamics

Pre-requisite: x-x

Weekly lesson hours: 06h

Discipline syllabus: Chapters 1, 2, 3, 4 and 6 of Book Text 2 and Chapter 6 of Book Text 1, that is, spaces Shifts, Finite Type Shifts, Sóficos, block codes, topological entropy, topological dynamics and cellular automata.

BIBLIOGRAPHIC REFERENCES

Text book:

1. Boccara, N.; Modeling Complex Systems. Springer-Verlag, New york, 2004.
2. Lind, D. A., Marcus, B.; An introduction to symbolic dynamics and coding. Cambridge University Press, New York, 1995.

COMPLEMENTARY BIBLIOGRAPHY

1. Hedlund, G. A. Endomorphisms and automorphisms of the shift dynamical system. Math. Systems Theory, 3, 320--375, 1969.
2. Host, B., Maass, A., Martínez, S.; Uniform Bernoulli measure in dynamics of permutative cellular automata with algebraic local rules. Discrete Contin. Dyn. Syst., 9, 6, 1423--1446, 2003.
3. Gutowitz, H. A. (Editor).; Cellular Automata: Theory and Experiment; proceedings of an interdisciplinary workshop. Physica D, 45, 1-485, 1990.
4. Kitchens, B. P.; Expansive dynamics on zero-dimensional groups. Ergodic Theory and Dynamical Systems, 7, 2, 249--261, 1987.
5. Nasu, M.; Local Maps Inducing Surjective Global Maps of One-Dimensional Tessellation Automata. Math. Systems Theory Related Fields, 11, 327--351, 1978.
6. Neumann, J.; Theory of Self-reproducing Automata (edited and completed by A. W. Burks). University of Illinois Press, 1966.
7. Pivato, M.; Invariant measures for bipermutative cellular automata. Discrete Contin. Dyn. Syst., 12, 4, 723--736, 2005.
8. Pivato, M.; Ergodic Theory of Cellular Automata. In Encyclopedia of Complexity and Systems Science, Springer-Verlag, New York, 2009.

9. Schmidt, K.; Dynamical systems of algebraic origin. Progress in Mathematics, 128. Birkhauser Verlag, Basel, 1995.
10. Sindhushayana, N. T., Marcus, B., Trott, M.; Homogeneous shifts. IMA J. Math. Control Inform., 14, 3, 255--287, 1997.
11. Sobottka, M.; Right Permutative Cellular Automata on Topological Markov Chains. Discrete Contin. Dyn. Syst., 20, 4, 1095--1109, 2008.
12. Williams, R. F.; Classification of subshifts of finite type. Ann. of Math., 98, 120--153, 1973. Errata: Ann. of Math., 99, 380--381.