

BRIEF SUMMARY OF PHD THESIS

- Title:** The structure of configuration space and reachability of some discrete dynamical systems
- Specialization:** Mathematical Foundation of Computer Science.
- Code:** 62 46 35 01.
- PhD student:** Le Manh Ha.
- Research Period:** From 09/2006 to 09/2010.
- Scientific advisor:** 1. Dr. Phan Thi Ha Duong – Institute of Mathematics - Vietnam Academy of Science and Technology.
2. Assoc. Prof. Dr. Phan Trung Huy - Hanoi University of Technology
- Training institutions:** Institute of Mathematics,
Vietnam Academy of Science and Technology.

New results presented in the thesis:

1. We prove the lattice structure of d -strict partitions of a given natural number and its infinite expansion.
2. We use the ECO method to study the generating trees for integer partitions. We give an ECO operator and give the recursive structure of the corresponding generating tree of d -strict partitions, we then also prove some identities on partitions by using this recursive structure.
3. We construct bijections from CFGs (Chip Firing Games) to some special Petri nets.
4. We characterize the order structure of CCFG (Conflicting Chip Firing Game) on directed acyclic graph and give algorithms to determine this order.
5. We characterize the reachability of CCFG on directed graph and give a polynomial algorithm to solve this reachability problem on directed graph.

Hanoi, October 25, 2011

Scientific advisor

PhD student

Dr. Phan Thi Ha Duong

Le Manh Ha