



istanbul matematiksel bilimler merkezi  
istanbul center for mathematical sciences

Istanbul Discrete Mathematics Meetings

# CERNY CONJECTURE, FORMAL LANGUAGES, SYNCHRONIZING AUTOMATA

Flavio d'Alessandro

University of Rome 'La Sapienza' and Boğaziçi University

## Abstract

The *synchronization problem* for a deterministic  $n$ -state automaton consists in the search of an input-sequence, called a *synchronizing word* such that the state attained by the automaton, when this sequence is read, does not depend on the initial state of the automaton itself.

If such a sequence exists, the automaton is called *synchronizing*.

If the automaton is deterministic and complete, a well-known conjecture by Cerny claims that it has a synchronizing word of length not larger than  $(n - 1)^2$ .

This conjecture has been shown to be true for several classes of automata.

In this talk, we outline some classical results on this problem.

**Date:** Friday, February 19, 2010

**Time:** 11:00

**Place:** IMBM Seminar Room, Boğaziçi University