



istanbul matematiksel bilimler merkezi
istanbul center for mathematical sciences

İSTANBUL DISCRETE MATHEMATICS MEETINGS

DOMINATION NUMBER OF RANDOM PROXIMITY CATCH DIGRAPHS: THEORY AND APPLICATIONS

Elvan Ceyhan

Department of Mathematics, Koç University

Abstract

Relative neighborhood graphs (RNGs) were introduced in 1980. Since then, various graph theoretic methods about RNGs have been developed and RNGs have grown into a more general family of graphs called *proximity graphs*. Around 2000, a new RNG which is called *proximity catch digraph* (PCD) is introduced. In this talk I will investigate the probabilistic and graph theoretical properties of domination number of the PCDs. These PCDs have the advantage of making tractable the mathematics in multiple dimensions, thereby enhancing the applicability of the methodology to statistical hypothesis testing (of e.g., spatial point patterns) and pattern classification. The PCDs are constructed in terms of the relative positions of members of one class with respect to each other and the Delaunay tessellation of the other class or classes. I will also describe the families of PCDs introduced, provide sample application areas, and will state the open research topics in this area.

Date: Friday, November 26, 2010

Time: 11:00

Place: IMBM Seminar Room, Boğaziçi University