Geometry Seminar
September 26, 2006, Tuesday, 6:00 p.m.
Room 613, Courant Institute
251 Mercer Street, New York

Crossing numbers of toroidal graphs

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Abstract

Let G be a graph of n vertices with maximum degree d that can be drawn without crossing in a closed surface of Euler characteristic χ. Answering a question of Peter Brass, we prove that G can be drawn in the plane with at most $c_\chi dn$ crossings, where c_χ is a constant depending only on χ. This result, which is tight up to a constant factor, is strengthened and generalized to the case when there is no restriction on the degrees of the vertices.

Joint work with K. Böröczky, Jr. and J. Pach.

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