

Meeting: 1001, Evanston, Illinois, SS 2A, Special Session on Extremal Combinatorics

1001-05-197 **Eva Czabarka, Ondrej Sykora and Laszlo Szekely*** (szekely@math.sc.edu), Department of Mathematics, University of South Carolina, Columbia, SC 29208, and **Imrich Vrto**. *Convex crossing numbers, circular arrangement problem, and isoperimetric functions.*

In an earlier paper written with Farhad Shahrokhi, we set a new lower bound for the one-page (in other terminologies, convex or outerplanar) crossing number of the $n \times n$ grid graph. In the current paper we obtain a more general result that may apply when the old result does not. A notable example for this is the hypercube. The more general result is also better by some constant multiplicative factor.

To provide further interesting applications of our result, we proved several new edge-isoperimetric inequalities. We point to out that our result provides lower bound for the linear arrangement problem of a graph. (Received August 25, 2004)