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**Harout Aydinian, Eva Czabarka\*** (czabarka@math.sc.edu) and **Laszlo A Szekely**. *Higher dimensional transversals in  $M$  dimensional grids*. Preliminary report.

In an earlier paper with K. Engel and P.L. Erdős we investigated a packing problem in  $M$ -dimensional grids, where bounds are given for the number of allowed entries in axis-parallel directions (i.e. in subgrid  $M - 1$  coordinates are fixed). This concept is motivated by error correcting codes and more-part Sperner theory, and it is closely connected to orthogonal arrays. Here we extend this concept from 1 to  $d$ -dimension: the bounds are given on the number of allowed entries in a subgrid with  $M - d$  coordinates fixed. We prove that there are packing arrays that always reach the natural upper bound for their size, and prove some related extremal results. (Received January 18, 2011)