1106-00-2162 **Jordan S. Ellenberg*** (ellenber@math.wisc.edu), Department of Mathematics, University of Wisconsin, 480 Lincoln Drive, Madison, WI 53706. *Combinatorial designs, finite geometries, and beating the lottery.*

From 2005 to 2012, a group of friends who met as MIT undergraduates won over 3 million dollars playing a poorly designed game in the Massachusetts lottery. How did they do it, and how did they get away with it? Their strategy, it turns out, involved the theory of *combinatorial designs*. I'll explain what combinatorial designs are, what they have to do with lotteries, their relation with geometry over finite fields, and the 2014 breakthrough of Peter Keevash that solved one of the major open problems in the subject. (Received September 15, 2014)