1108-05-177 **Lucas Kramer** and **Ryan R. Martin*** (rymartin@iastate.edu), 396 Carver Hall, Department of Mathematics, Ames, IA 50011. *A new upper bound for the size of diamond-free families.*

In the Boolean lattice, we say that a family $\mathcal{F}$ has a diamond as a (weak) subposet if there are four distinct subsets A, B, C, D such that $A \subset B \subset D$ and $A \subset C \subset D$. There has been a great deal of recent activity on the size of families in the Boolean lattice with no (weak) copy of a fixed subposet. However, the maximum size of a diamond-free family is still unknown, even asymptotically.

Using a method due to Manske and Shen, we have obtained a new upper bound for the size of a diamond-free family in the n-dimensional Boolean lattice of $(2.2067 + o(1))\binom{n}{\lfloor n/2 \rfloor}$. This improves the previous bound of 2.25, which was due to the authors and Michael Young. (Received January 10, 2015)