1080-05-333 **Louis DeBiasio*** (debiasld@muohio.edu) and **Tao Jiang**. *Exact codegree condition for the Fano plane via digraphs.*

Let $\mathrm{ex}_2(n,H)$ denote the maximum codegree of a 3-graph on n vertices which does not contain a copy of H. Mubayi proved that the codegree density of the Fano plane, $\mathbf{F}$, is $\frac{1}{2}$ and conjectured that the exact value is $\mathrm{ex}_2(n,\mathbf{F}) = \lfloor \frac{n}{2} \rfloor$. Using a very sophisticated "quasi-randomness" argument, Keevash proved Mubayi's conjecture. Here we give a simple proof of Mubayi's conjecture by using an interesting class of 3-graphs that we call "rings" – which are obtained via an auxiliary digraph. We then determine the Turán density of this family of rings. (Received January 31, 2012)