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

Let  $\text{ex}_2(n, H)$  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  $\text{ex}_2(n, \mathbf{F}) = \lfloor \frac{n}{2} \rfloor$ . 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 18, 2012)