1092-05-225 **J Balogh** and **J Butterfield***, butter@umn.edu, and **P Hu** and **J Lenz**. *Mantel's Theorem for Random Hypergraphs.*

A cornerstone result in extremal graph theory is Mantel's Theorem, which states that every maximum triangle-free subgraph of $K_n$ is bipartite. A sparse version of Mantel's Theorem is that, for sufficiently large $p$, every maximum triangle-free subgraph of $G(n,p)$ is with high probability (w.h.p.) bipartite. Recently, DeMarco and Kahn proved this for $p > K\sqrt{\log n/n}$ for some constant $K$, and apart from the value of the constant this bound is best possible. We study an extremal problem of this type in random hypergraphs. Denote by $F_5$ the 3-uniform hypergraph with vertex set $\{a,b,c,d,e\}$ and edge set $\{abc, ade, bde\}$. Frankl and Füredi proved that the maximum 3-uniform hypergraph on $n$ vertices containing no copy of $F_5$ is tripartite for $n > 3000$. It is natural to ask for what $p$ is every maximum $F_5$-free subhypergraph of $G^3(n,p)$ w.h.p. tripartite. We show this holds for $p > K\log n/n$ for some constant $K$ and does not hold if $p = 0.1\sqrt{\log n}/n$. (Received August 10, 2013)