1122-05-366 **Andrzej Grzesik**, Krakow, Poland, **Ping Hu**, Coventry, CV47AL, United Kingdom, and **Jan Volec*** (honza@ucw.cz), 8050 Zurich, Switzerland. *Minimum number of edges that occur in odd cycles.*

If an n-vertex graph has more than $n^2/4$ edges, then G contains a copy of a cycle of length $2k+1$. Can we guarantee something stronger than just a single copy? In 1992, Erdos, Faudree and Rousseau showed that the number of edges that occur in a triangle in G is at least $n+1-(n \mod 2)$ and this bound is tight. They also showed that the number of edges in G that occur in a copy of $(2k+1)$-cycle, where $k>1$ is fixed, suddenly starts being quadratic in n, and it is asymptotically at least $11n^2/144$. However, they conjectured that the graph G must contain at least $(2/9+o(1))n^2$ such edges. Very recently, Furedi and Maleki showed that the conjecture is false in the case of 5-cycles by constructing n-vertex graphs with $n^2/4+1$ edges such that only $(2+\sqrt{2}+o(1))n^2/16 < 0.214n^2$ edges occur in 5-cycles, and proved an asymptotically correct lower bound on the number of such edges under the additional assumption that G has $(1/4+\epsilon)n^2$ edges. In this talk, we use a flag algebra approach to tackle this problem and show that every n-vertex graph with more than $n^2/4$ edges contains $(2+\sqrt{2}-o(1))n^2/16$ edges that occur in 5-cycles, which settles a conjecture of Furedi and Maleki. Moreover, we obtain the corresponding stability result and discuss analogous results for longer odd cycles. (Received August 16, 2016)