1067-05-607   **Mohit Kumbhat*** (`kumbhat2@illinois.edu`), Urbana, IL 61801, **A Kostochka** (`kostochk@math.uiuc.edu`), Urbana, IL 61801, and **T Luczak** (`tomasz@mathcs.emory.edu`), Atlanta, GA 30322. *Conflict free coloring of (simple) hypergraphs with few edges.*

A coloring of the vertices of a hypergraph $\mathcal{H}$ is called *conflict free* if each edge e of $\mathcal{H}$ contains a vertex whose color does not get repeated in e. The smallest number of colors required for such a coloring is called the conflict-free chromatic number of $\mathcal{H}$, and is denoted by $\chi_{CF}(\mathcal{H})$. Pach and Tardos studied this parameter for graphs and hypergraphs. Among other things, they proved that for an $(2r-1)$-uniform hypergraph $\mathcal{H}$ with m edges, $\chi_{CF}(\mathcal{H})$ is of the order of $m^{1/r} \log m$. They also raised the question whether the same result holds for r-uniform hypergraphs. In this talk we shall show that this is not necessarily true. Moreover, we provide lower and upper bounds on the minimum number of edges of an r-uniform simple hypergraph which is not conflict free k-colorable. This is a joint work with A. Kostochka and T. Łuczak. (Received September 10, 2010)