1086-05-1288 **Zoltán Füredi**, University of Illinois, Urbana, IL 61801, and **Tao Jiang*** (`jiangt@muohio.edu`), Miami University, Oxford, OH 45056. *Hypergraph Turan numbers of loose cycles and linear cycles.* Preliminary report.

Given a positive integer n and a family $\mathcal{H}$ of r-graphs, the Turán number $ex_r(n,\mathcal{H})$ is the maximum number of edges in an r-graph on n vertices not containing any member of $\mathcal{H}$. An r-uniform loose cycle of length k consists of a cyclic list of r-sets $A_1, A_2, \ldots, A_k$ such that $A_i \cap A_j \neq \emptyset$ if and only if $i = j$ or i, j are consecutive modulo k. A loose cycle is linear if consecutive sets in the list intersect in precisely one element. Let $\mathcal{C}^r_k$ denote the family of r-uniform loose cycles of length k and let L^r_k denote the r-uniform linear cycle of length k. For fixed $r, k \geq 3$, Mubayi and Verstraëte conjectured that $ex_r(n,\mathcal{C}^r_k) = \ell\binom{n-1}{r-1} + O(n^{r-2})$, where $\ell = \lfloor\frac{k-1}{2}\rfloor$. They proved the conjecture for all r when $k = 3$ or 4.

We prove their conjecture for all $r \geq 4$ and $k \geq 3$ in a stronger form by establishing for all large n the exact value of $ex_r(n,\mathcal{C}^r_k)$. We also characterize the unique extremal construction and establish stability. When $r \geq 5$, we also obtain exact results for linear cycles. The asymptotics follow from a more general result that we establish. Our main tool is the Delta system method. (Received September 20, 2012)