1119-05-54 **Craig Timmons*** (craig.timmons@csus.edu) and **Xing Peng** (x2peng@tju.edu.cn). *A path Turan problem for infinite graphs.*

Let G be an infinite graph whose vertex set is the natural numbers $\{1, 2, \dots\}$. An increasing path of length k is a sequence of $k + 1$ vertices $n_1 < n_2 < \cdots < n_{k+1}$ such that $\{n_i, n_{i+1}\}$ is an edge of G for $1 \leq i \leq k$. How many edges can G have if G has no increasing path of length k? Czipszer, Erdős, and Hajnal answered this question in the case when $k \in \{2, 3\}$. Sometime later, Dudek and Rödl constructed an infinite graph that has no increasing path of length 16 and was denser than earlier constructions. Their graph disproved a conjecture of Erdős, however, the conjecture remained open for $4 \leq k \leq 15$. In this talk we will give constructions showing that the conjecture of Erdős is incorrect for $4 \leq k \leq 15$. This is joint work with Xing Peng and is partially supported by a grant from the Simons Foundation (#359419 to Craig Timmons). (Received February 03, 2016)