1125-13-974 **Sarah M. Fleming** and **Lena Ji***, lji@math.princeton.edu, and **S. Loepp**, **Peter M. McDonald**, **Nina Pande** and **David Schwein**. *Strange Formal Fibers: A Counterexample.*

Let $R$ be a local ring with maximal ideal $\mathfrak{m}$, and let $\hat{R}$ be its completion with respect to $\mathfrak{m}$. Completion induces a morphism $\mathrm{Spec}\hat{R} \to \mathrm{Spec}R$ given by $\mathfrak{q} \mapsto \mathfrak{q} \cap R$, and for each prime ideal $\mathfrak{p} \in \mathrm{Spec}R$, the formal fiber of $R$ at $\mathfrak{p}$ is defined to be the preimage of $\mathfrak{p}$ under this map. The dimension of the formal fiber of $R$ at $\mathfrak{p}$ – that is, the maximal length of a chain of prime ideals of $\hat{R}$ lying over $\mathfrak{p}$ – is denoted $\alpha(R, \mathfrak{p})$. In many cases, the dimensions of formal fibers are well-understood; for most rings, $\alpha(R, \mathfrak{p}) = \dim R - \mathrm{ht}\mathfrak{p} - 1$.

Heinzer, Rotthaus, and Sally have asked, given an excellent local integral domain $R$ such that $\alpha(R, (0)) > 0$, if the set of height one prime ideals $\mathfrak{p}$ such that $\alpha(R, \mathfrak{p}) = \alpha(R, (0))$ is finite. Given previous results, the expectation might be an affirmative answer. We construct a non-excellent counterexample where every height one prime ideal $\mathfrak{p}$ of $R$ has the property that $\alpha(R, \mathfrak{p}) = \alpha(R, (0))$. This talk is based on joint work completed at the Williams College REU with Sarah Fleming, S. Loepp, Peter McDonald, Nina Pande, and David Schwein. (Received September 13, 2016)