1010-13-17 **Grady D. Bullington*** (bullingt@uwosh.edu), University of Wisconsin Oshkosh, 800 Algoma Blvd, 121 Swart Hall, Oshkosh, WI 54901. *Generalizing Sperner's lemma to a free module over an SPIR.*

Sperner's Lemma states that if $\mathcal{A}$ is an anti-chain (i.e., collection of incomparable subsets) from the power set $\mathcal{P}([n])$ of an n-element set, then $|\mathcal{A}| \leq \binom{n}{\lfloor \frac{n}{2} \rfloor}$. Rota and Harper provide q-analogues of a string of generalizations of Sperner's lemma by Lubel, Yamamoto, Meshalkin, Bollabás and Erdös with the following theorem; *if $\mathcal{A}$ is an l-chain-free family of subspaces of a finite vector space $\mathbb{F}_q^n$, then $\sum_{A \in \mathcal{A}} \frac{1}{\binom{n}{dim(A)}_q} \leq l$ and $|\mathcal{A}|$ is bounded by the sum of the l largest Gaussian coefficients $\binom{n}{k}_q$.*

In the talk, the above will be extended to the setting of a finitely-generated module over a finite SPIR. One will be able to see how Rota and Harper's theorem is the intersection of multiple results in this new environment. (Received June 27, 2005)