The original notion of poset dimension is due to Dushnik and Miller (1941). Recently, Ueckerdt (2016) proposed a variant, called local dimension, which has garnered considerable interest. A local realizer of a poset $P$ is a collection of partial linear extensions of $P$ that cover the comparabilities and incompa-

rabilities of $P$. The local dimension of $P$ is least $d$ for which there is a local realizer in which every element appears at most $d$ times.

Hiraguchi (1955) proved that any poset with $n$ points has dimension at most $n/2$, which is sharp. We prove that the local dimension of a poset with $n$ points is $O(n/\log n)$. To show that this bound is best possible, we use probabilistic methods to prove the following stronger result which extends a theorem of Chung, Erdős, and Spencer (1983): There is an $n$-vertex bipartite graph in which each difference graph cover of the edges will cover one of the vertices $\Theta(n/\log n)$ times.

For the DM seminar schedule, see:

http://www.people.vcu.edu/~dcranston/DM-seminar