Katharine Shultis* (shultis@gonzaga.edu) and Peder Thompson (peder.thompson@ttu.edu). Reducibility of parameter ideals in low powers of the maximal ideal. Preliminary report.

It is well-known that a commutative, local, noetherian ring $R$ is Gorenstein if and only if every parameter ideal of the ring is irreducible. A less well-known result due to Marley, Rogers, and Sakurai gives that there is an integer $\ell$ such that $R$ is Gorenstein if and only if there exists an irreducible parameter ideal in the $\ell$-th power of the maximal ideal. The proof of this result gives that $\ell$ is the smallest integer such that a certain map of Ext modules is surjective after taking socles. We investigate upper bounds on this integer $\ell$. (Received February 01, 2018)