1120-13-119 **Melissa C. Menning*** (mcm146@umkc.edu), Kansas City, MO 64110, and **Liana M. Sega** (segal@umkc.edu), Kansas City, MO 64110. *Cohomology of finite modules over short Gorenstein rings.*

Let R be a Gorenstein local ring with maximal ideal $\mathfrak{m}$ satisfying $\mathfrak{m}^3 = 0 \neq \mathfrak{m}^2$. Set $\mathsf{k} = R/\mathfrak{m}$ and $e = \operatorname{rank}_{\mathsf{k}}(\mathfrak{m}/\mathfrak{m}^2)$. If $e > 2$ and M, N are finitely generated R-modules, we show that the formal power series

$$\sum_{i=0}^{\infty} \operatorname{rank}_{\mathsf{k}} \left(\operatorname{Ext}_R^i(M,N) \otimes_R \mathsf{k}\right) t^i \quad \text{and} \quad \sum_{i=0}^{\infty} \operatorname{rank}_{\mathsf{k}} \left(\operatorname{Tor}_i^R(M,N) \otimes_R \mathsf{k}\right) t^i$$

are rational, with denominator $1 - et + t^2$. (Received February 17, 2016)