

TOP-STABLE AND LAYER-STABLE HOM-ORDER AND DEGENERATIONS

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This talk is a report on joint work with Anita Valenta.

Using geometrical methods, Birge Huisgen-Zimmermann has shown that if M is a module with simple top, then M has no proper degeneration $M <_{\text{deg}} N$ such that $\mathfrak{r}^t M / \mathfrak{r}^{t+1} M \simeq \mathfrak{r}^t N / \mathfrak{r}^{t+1} N$ for all t . Given a module M with square-free top and a projective cover P , she shows also that $\dim_k \text{Hom}(M, M) = \dim_k \text{Hom}(P, M)$ if and only if M has no proper degeneration $M <_{\text{deg}} N$ where $M / \mathfrak{r} M \simeq N / \mathfrak{r} N$. In this talk I will give an alternative approach to these results by using the more general hom-order instead of the degeneration-order and then obtain a direct algebraic proof of a more general statements.

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