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Benjamin Briggs* (briggs@math.utah.edu) and **Josh Pollitz**. *Asymptotic properties of Tor modules over complete intersections*. Preliminary report.

In 2000 Avramov and Buchweitz introduced a support theory for complete intersections, and used it to establish some remarkable asymptotic properties of Ext modules over such rings.

If M and N are finitely generated modules over a local complete intersection R , then the minimal number of generators of $\text{Ext}_R^i(M, N)$ grows polynomially with i , and the order of this growth is known as the complexity $\text{cx Ext}_R(M, N)$. Avramov and Buchweitz showed that $\text{cx Ext}_R(M, N) = \text{cx Ext}_R(N, M)$, by connecting complexity to the dimension of their support varieties. They also showed that the $\text{Ext}_R^i(M, N)$ eventually vanish if and only if the $\text{Tor}_i^R(M, N)$ do the same.

Nevertheless, the question of whether $\text{Ext}_R(M, N)$ and $\text{Tor}^R(M, N)$ have the same growth in general has remained open. Dao made partial progress on the problem in 2007. We establish that $\text{cx Tor}^R(M, N) = \text{cx Ext}_R(M, N)$ always holds.

One of the steps is interesting in its own right: the set of associated primes of Tor modules (for odd and even degrees separately) eventually stabilise.

Depending on time, I'll talk about some generalisations, and some related developments on the homological behaviour of complete intersections. (Received January 18, 2020)