1127-13-286   **Michael K Brown**, **Claudia Miller*** (`clamille@syr.edu`), **Peder Thompson** and **Mark E Walker**. *Adams operations for matrix factorizations and a conjecture of Dao and Kurano.*

Using an idea of Atiyah from 1966, we develop Adams operations on the Grothendieck groups of perfect complexes with support and of matrix factorizations using cyclic group actions on tensors powers. In the former setting, Gillet and Soule developed these using the Dold-Kan correspondence and used them to solve Serre's Vanishing Conjecture in mixed characteristic (also proved independently by P. Roberts using localized Chern characters). Their approach cannot be used in the setting of matrix factorizations, so we use Atiyah's approach, avoiding simplicial theory altogether.

As an application, we prove a conjecture of Dao and Kurano on the vanishing of Hochster's theta pairing for pairs of modules over an isolated hypersurface singularity in the remaining open case of mixed characteristic. Our proof is analogous to that of Gillet and Soule for the vanishing of Serre's intersection multiplicity. (Received February 06, 2017)