

1064-13-393

Kia Dalili* (dalilik@missouri.edu). *On applications of regularity bounds to length complexity of tensor product and HomAB problems.*

The length complexity of tensor product problem is the problems of finding uniform bounds for the length of the finite support portion of the tensor product of two finitely generated modules. While the HomAB problem is the the problem of bounding the number of generators of the module of homomorphisms of a pair of finitely generated modules. These seemingly unrelated problems are both connected to study of extended multiplicities of the modules involved.

I will briefly review these problems giving a quick survey of the known results. Then connecting the extended multiplicities with regularity of module, I will use results that bound the regularity of a graded module to solve these problems for standard graded algebras. (Received September 14, 2010)