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On torsion in tensor products of modules

Olgür Çelikbaş

West Virginia University

Abstract

Tensor products are fundamental objects used in many areas including mathematics, physics, and engineering. In 1961 Maurice Auslander initiated the study of torsion in tensor products of finitely generated modules in his pioneering paper, Modules over unramified regular local rings (Illinois J. Math. 5, 1961, 631-647). Subsequently, in 1994, Craig Huneke and Roger Wiegand extended and studied Auslander's results over hypersurface rings in their influential paper, Tensor products of modules and the rigidity of Tor (Math. Ann. 299, 1994, no. 3, 449–476).

In this talk I will discuss some of the results of Auslander, and Huneke and Wiegand, concerning the existence of torsion in tensor products of finitely generated modules over commutative Noetherian local rings. I also plan to talk about my work on the reflexivity of tensor products, which was motivated by the second rigidity theorem of Huneke and Wiegand.

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