

Indecomposable modules of large rank over commutative local rings

Let R be a local (commutative, Noetherian) ring. One consequence of recent joint work with L. Levy is that, if R is Dedekind-like, then the torsion-free ranks of finitely generated indecomposable R -modules are bounded (in fact by 2). R. Wiegand conjectured that Dedekind-like rings and their homomorphic images are the only local rings with this property.

In joint work with W. Hassler, R. Karr, and R. Wiegand, we prove a strong form of Wiegand's conjecture in case R is a local Cohen-Macaulay ring. In this talk I shall define these terms (Dedekind-like ring, Cohen-Macaulay ring, and torsion-free rank) and give an overview of our proof.