



## COLLOQUIUM

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4:00pm - 5:00pm

315 Armstrong Hall

### **Rigid ideals in complete intersection domains**

**Roger Wiegand**

Willa Cather Professor Emeritus of Mathematics  
University of Nebraska at Lincoln

In 1994 Craig Huneke and I made the following conjecture, for a finitely generated module  $M$  over a one-dimensional local domain  $R$  (for example,  $R$  might be the local ring of a singular point on an algebraic curve, or a localized ring of algebraic integers): If both  $M$  and the tensor product of  $M$  with its dual  $M^* = \text{Hom}(M, R)$  are torsion-free, then  $M$  must be free.

If the ring  $R$  is Gorenstein (sort of a symmetry condition), the conjecture is equivalent to the following assertion: If  $M$  is rigid (that is, every short exact sequence  $0 \rightarrow M \rightarrow X \rightarrow M \rightarrow 0$  splits), then  $M$  is free. Over the past five years many authors have settled special cases of these conjectures, but they are still open. In this talk I will describe recent progress on the conjecture by Craig Huneke, Srikanth Iyengar and me, for the case when  $M$  is an ideal of the ring.