

# Queen's Algebraic Geometry — Seminar —

## NON-COMMUTATIVE RESOLUTIONS OF SINGULARITIES AND THE GLOBAL SPECTRUM

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### Abstract

This talk is about non-commutative analogs of resolutions of singularities. In short, non-commutative desingularizations of a commutative ring  $R$  are endomorphism rings of certain  $R$ -modules of finite global dimension. After some motivating examples, we discuss several approaches to non-commutative resolutions (NCRs), namely, Van den Bergh's crepant NCRs and NCRs as recently defined by Dao, Iyama, Takahashi and Vial. Then we study their relevance for non-normal rings, in particular the question, under which conditions a non-commutative resolution exists. This leads us to consider the so-called global spectrum of a ring, that is, the set of all possible global dimensions of endomorphism rings of MCM-modules. This is joint work with H. Dao and C. Ingalls.

Monday 18 November 2013  
16:30 – 17:30  
319 Jeffery Hall