Cohen-Macaulay cones and subcategories

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I will describe new results on maximal Cohen-Macaulay (MCM) modules over local Cohen-Macaulay rings coming from two different projects. The first, joint with Ryo Takahashi, studies different invariants of resolving subcategories of MCM modules. This leads to some complete classification results and a strong generalization of a theorem by Auslander on finite MCM representation type.

The second project, joint with Kazuhiko Kurano, is about the cone of MCM modules in the Grothendieck group modulo numerical equivalences. One noteworthy consequence is the existence of counterexamples to generalized Serre intersection multiplicities for a large class of hypersurfaces, extending results by Hochster-Dutta-McLaughlin, Levine, and Roberts-Srinivas.