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Title: D-critical locus structure for local toric Calabi-Yau 3-folds

Abstract: Motivic Donaldson-Thomas (DT) theory is introduced by Kontsevich-Soibelman, it is a categorification of the classical DT theory. D-critical locus structure is an important ingredient in the definition of Motivic DT invariant following the definition by Bussi-Joyce-Meinhardt. It was shown by Brav-Bussi-Joyce that a -1 -shifted symplectic derived scheme defines a d-critical locus structure on its classical truncation. In this talk, I will discuss some results of this structure on the Hilbert scheme of zero-dimensional subschemes on local toric Calabi-Yau 3-folds. I will also discuss some recent progress on Calabi-Yau 4-folds. This is based on joint work/work in progress with Sheldon Katz/Nachiketa Adhikari. The results on Calabi-Yau 3-folds have been obtained from previous work by Ricolfi-Savvas, but the techniques used here are different.