Quasi-asymptotically conical Calabi-Yau manifolds

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We will explain how to construct new examples of quasi-asymptotically conical (QAC) Calabi-Yau manifolds that are not quasi-asymptotically locally Euclidean (QALE). Our strategy consists in introducing a natural compactification of QAC-spaces by manifolds with fibred corners and to give a definition of QAC-metrics in terms of a natural Lie algebra of vector fields on this compactification. Using this and the Fredholm theory of Degeratu-Mazzeo for elliptic operators associated to QAC-metrics, we can in many instances obtain Kahler QAC-metrics having Ricci potential decaying sufficiently fast at infinity. We can then obtain QAC Calabi-Yau metrics in the Kahler classes of these metrics by solving a corresponding complex Monge-Ampere equation. This is a joint work with Ronan Conlon and Anda Degeratu.

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