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Admissible Kaehler metrics on a certain complex three manifold

In this talk I will discuss various nice admissible Kaehler metrics on the three dimensional complex manifold $M = P(\mathcal{O} \oplus \mathcal{O}(1, -1)) \rightarrow \mathbb{C}\mathbb{P}^1 \times \mathbb{C}\mathbb{P}^1$. Due to work by A. Hwang and D. Guan, every Kaehler class on this manifold admits extremal Kaehler metrics as defined by E. Calabi and some of these extremal metrics have constant scalar curvature (CSC). Moreover, by the famous result of N. Koiso and Y. Sakane, one of these metrics is even Kaehler-Einstein metric. Based on recent work with C. Boyer and D. Calderbank I will talk about an interesting equivalency (c -projective equivalency) that occurs between some of the CSC Kaehler metrics on M . Further, based on recent work in progress with V. Apostolov and G. Maschler, I will present another special type of Kaehler metrics that live on M , namely conformally Kaehler Einstein-Maxwell metrics.