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Special representatives of complexified Kähler classes

Motivated by constructions appearing in mirror symmetry, we consider the problem of finding canonical representatives for a complexified Kähler class on a compact complex manifold. These are cohomology classes of the form $\beta + i\,\alpha$, for α a Kähler class and β an arbitrary real $(1,1)$-class. As is often the case in complex geometry, one way to fix a representative of such a class is to impose an elliptic PDE. In this talk, I will explain why a natural choice of PDE is given by coupling the deformed Hermitian Yang-Mills equation and the constant scalar curvature equation. We will then see how to prove the existence of solutions in some special cases. Based on arXiv:2209.14157, joint work with Jacopo Stoppa.