Geometric flows of Balanced metrics

An Hermitian metric $g$ on a complex manifold $(M, J)$ is called balanced if its fundamental form $\omega$ is co-closed. Typically examples of balanced manifolds are given by modifications of Kähler manifolds, twistor spaces over anti-self-dual oriented Riemannian 4-manifolds and nilmanifolds. In the talk it will be discussed two new geometric flows of balanced structures. The first of them was introduced in [1] and consists in a generalisation of the Calabi flow to the balanced context. The flow preserves the Bott-Chern cohomology class of the initial structure and in the Kähler case reduces to the classical Calabi flow. The other flow still preserves the Bott-Chern class of the initial structure but, in contrast with the first one, it is a potential flow and it does not preserve the Kähler condition.

For the both flows it will be discussed the well-posedness and the stability around Kähler-Einstein metrics.

References