Workshop on singular canonical Kähler metrics on compact and noncompact manifolds

Wednesday (September 03)

9:30-10:30 **Mihai Paun:Algebraicity of holomorphic foliations on Kähler manifolds and applications.**

Abstract: The talk will be centred on some of the main results obtained in collaboration with F. Campana and J. Cao in projective and Kähler setting, respectively (cf. arXiv 1508.02456, arXiv 2502.02183). These topics intersect the main theme of the workshop through the main techniques used in their proof, namely positivity of direct images, Monge-Ampère equations...

11:00-12:00 **Jian Song:RCD structures on singular Kahler varieties**

Abstract: Let X be a 3-dimensional projective variety with klt singularities. We prove that every singular Kahler metric on X with bounded Nash entropy and Ricci curvature bounded below induces a unique compact RCD space homeomorphic to the projective variety X itself. In particular, singular Kahler- Einstein spaces of complex dimension 3 with bounded Nash entropy are compact RCD spaces topologically and holomorphically equivalent to the underlying projective variety. Such results establish connections among algebraic, geometric and analytic structures of klt singularities from birational geometry and provide abundant examples of RCD spaces from algebraic geometry via complex Monge-Ampere equations.