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Baily–Borel Compactifications of Period Images and the b-Semiampleness Conjecture

mardi 9 septembre 2025 14:00 (1 heure)

We address two questions related to the semiampleness of line bundles arising from Hodge theory. First, we prove there is a functorial compactification of the image of a period map of a polarizable integral pure variation of Hodge structures for which a natural line bundle extends amply. This generalizes the Baily–Borel compactification of a Shimura variety, and for instance produces Baily–Borel type compactifications of moduli spaces of Calabi–Yau varieties. We prove more generally that the Hodge bundle of a Calabi–Yau variation of Hodge structures is semiample subject to some extra conditions, and as our second result deduce the b-semiampleness conjecture of Prokhorov–Shokurov. The semiampleness results crucially use o-minimal GAGA, and the deduction of the b-semiampleness conjecture uses work of Ambro and results of Koll\'ar on minimal lc centers to verify the extra conditions geometrically. This is joint work with S. Filipazzi, M. Mauri, and J. Tsimerman.

Orateur: BAKKER, Benjamin (Univ. of Illinois, Chicago)

Classification de Session: Afternoon Chair: Pascal Autissier