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Concepts of stability and positivity for big and nef line bundles, divisorial sheaves and divisors on the Zariski Riemann spaces

A key feature of the Neron-Severi spaces of divisor classes on the Zariski Riemann spaces is the absence of an ample cone. This highlights the question of defining K-stability invariants and measures of positivity for big and nef classes on projective varieties. The purpose of this talk is to report on recent progress in this direction. Some emphasis will be placed on my recent results about slope K-stability for big and nef divisors. Time permitting, I will report on my additional very recently obtained results which are in the general direction of the Riemann-Roch problem for birational divisors. For instance, this includes construction of Newton-Okounkov bodies for birational divisors and a concept of Kodaira-Iitaka dimension for fractional b-generalized log varieties.