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Approximability of tropical currents

Abstract

Demailly in 2012 showed that the Hodge conjecture is equivalent to the statement that any (p, p)-dimensional closed current with rational cohomology class can be approximated by linear combinations of integration currents; Moreover, the statement that all strongly positive currents with rational cohomology class can be approximated by positive linear combinations of integration currents, can be viewed as a strong version of the Hodge conjecture (1982). In this talk, I will explain a few basic notions in the theory of currents and in tropical geometry, and discuss how ideas from tropical geometry can be used to refute the later statement. The talk is based on joint works with June Huh and Karim Adiprasito.