

ALGEBRA
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Auction theory and tropical geometry

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Abstract: In a recent and ongoing work, Baldwin and Klempere explored a connection between tropical geometry and economics. They gave a sufficient condition for the existence of competitive equilibrium in product-mix auctions of indivisible goods. This result, which we call the Unimodularity Theorem, can also be traced back to the work of Danilov, Koshevoy, and Murota. I will introduce auction theory, prove of the Unimodularity Theorem, and discuss special cases such as stable matching with transferable utility. This is based on joint work with Ngoc Mai Tran.

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