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**Tropical schemes, tropical cycles, and valuated matroids**

**Abstract**

Tropical geometry studies an algebraic variety by ‘tropicalising’ it into a combinatorially accessible polyhedral complex. The resulting tropical variety comes endowed with certain multiplicities, and it retains a good amount of information about the original variety. In a recent preprint, Jeff and Noah Giansiracusa introduced a notion of scheme structure for tropical varieties. I will describe how one can recover the multiplicities of the tropical variety from this information, and how the structure of these tropical schemes is closely related to valuated matroids. This is joint work with Diane Maclagan.