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Tropical and non-Archimedean geometry of toric stacks – with a view towards twisted Losev-Manin spaces

In this talk I am going to report on joint work-in-progress with Steffen Marcus and Matthew Satriano concerning the tropical and non-Archimedean geometry of toric stacks. Extending the class of toric varieties, toric stacks are a rather restrictive type of algebraic stack whose geometry can be completely described in terms of a combinatorial object, a so called *stacky fan*. The first part of this talk will be concerned with a reinterpretation of these stacky fans as geometric stacks over the category of rational polyhedral fans (with torsion). Using this language we can then describe two different geometric realizations of these stacky fans as topological stacks, both of which arise naturally as a stack-theoretic non-Archimedean skeleton of the original toric stack. The second half of the talk will deal with a particular example: the moduli space $\mathcal{L}_n^{\leq N}$ of twisted stable chains of projective lines with $n + 2$ marked points, where the orders of the stabilizer groups are bounded by N , a so called *twisted Losev-Manin space*. We will show that this moduli space is a root stack over the toric variety of the permutohedron and exhibit its tropicalization as a moduli stack of twisted stable rational tropical chain curves.