

Polytopes and Toric Varieties:

A brief introduction

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The aim of this talk is to give a brief introduction of the construction of a toric variety starting from a suitable convex polytope, in the setting of symplectic Marsden-Weinstein reduction. In particular, we will describe the classical Delzant procedure, and then we will describe an equivalent complex construction from which a toric variety get a natural Kähler structure. Finally, we will move on to a description of the Riemannian metric over the open orbit of the above mentioned toric variety. The main idea behind the seminar is that everything (in some sense) about a toric variety is contained in the combinatorial information of the “momentum polytope”.