

Title: Toric degenerations as a tool for finding the Gromov width of symplectic manifolds.

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Abstract:

In this talk I will first introduce symplectic manifolds and their invariant called the Gromov width.

It measures the biggest ball that can be symplectically embedded into a given symplectic manifold.

Symplectic embeddings of balls are easy to construct if the given symplectic manifold is equipped with a toric action, i.e. it is a smooth toric variety.

If this is not the case, one can often construct a toric degeneration from the given manifold M to a toric variety, and use it to define a toric action on an open dense subset of M .

I will describe this method in more detail and concentrate on the case when M is a coadjoint orbit of a (compact, connected) Lie group G .

In that case there exists a "nice" toric degeneration of M to a toric variety

whose associated polytope is the string polytope arising from a string parametrization of elements of a crystal basis for a certain representation of the Lie group G .

I will finish with an example when G is the symplectic group, a recent work joint with Iva Halacheva from University of Toronto.