

BOSTON UNIVERSITY GEOMETRY AND PHYSICS SEMINAR

CACTUS FLOWER CURVES AND KASHIWARA CRYSTALS

Leonid Rybnikovx

MIT

CCDS 365, Feb 28, 2024, 4-5pm

Tea: 3:45pm in Room 365

Abstract: The moduli space of rational curves with $n+1$ marked points and a tangent vector at the first of them (called framing) has a natural compactification F_n analogous to the Deligne-Mumford one for the space of non-framed curves, called moduli space of cactus flower curves. Contrary to the usual Deligne-Mumford compactification, it is singular – but still has many nice properties. I will explain how the real locus of this moduli space controls the coboundary monoidal category of Kashiwara crystals for a semisimple Lie algebra \mathfrak{g} (that is, a combinatorial model of the category of finite-dimensional \mathfrak{g} -modules). Namely, such categories naturally correspond to some collections of compatible coverings of moduli spaces of real cactus flower curves, and the coboundary monoidal structure (i.e. the associator and commutator morphisms) can be read from these coverings.

See <http://math.bu.edu/research/geom/seminar.html> or contact Yu-Shen Lin (yslin@bu.edu) or Brian Williams (bwill22@bu.edu) for more information.