

Harvard-M.I.T. Algebraic Geometry Seminar

COUNTING HOLOMORPHIC CURVES VIA LATTICE PATHS IN POLYGONS

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Abstract:

The talk presents a new formula for the Gromov-Witten invariants of arbitrary genus in \mathbb{P}^2 and $\mathbb{P}^1 \times \mathbb{P}^1$ as well as the related enumerative invariants in other toric surfaces. The count is given in terms of certain lattice paths connecting two vertices of the relevant Newton polygon. The length of the paths turns out to be responsible for the genus of the curves in question.

To obtain the formula we make use of the so-called tropical algebraic geometry, or algebraic geometry over the $(\max, +)$ -semiring. This piecewise-linear counterpart of classical algebraic geometry governs the behavior of holomorphic objects near the so-called "large complex limit".

Tuesday, December 3

3:00 p.m.

MIT Room 4-370

<http://www-math.mit.edu/~jstarr/02sem/>.