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Toward a construction of 2-parameter family of Painlevé tau-function via the topological recursion

Monday, December 3, 2018 2:00 PM (1 hour)

Painlevé equations are 2nd order non-linear ODEs with many interesting properties (Painlevé property, isomonodromy deformation, space of initial conditions...). In our previous work with O. Marchal and A. Saenz, it was shown that the tau-function corresponding to a particular solution of Painlevé equations (called 0-parameter solution) can be constructed as a partition function of the topological recursion applied to a family of singular elliptic curves parametrized by isomonodromic time (based on the idea of earlier work by G. Borot and B. Eynard). In this talk, I will present a conjectural expression of the tau-function corresponding to the general solution (called 2-parameter solution) of the first Painlevé equation through the topological recursion applied to a family of smooth elliptic curves.

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