

Spectral curves giving rise to Frobenius manifolds

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Starting from a conformal semi-simple Frobenius manifold, Dunin-Barkowski, Orantin, Shadrin, Spitz proved that one can compute its correlation functions via topological recursion applied to a local spectral curve. In joint work with Dunin-Barkowski, Orantin, Popolitov, Shadrin we then proved that, under some additional assumptions on the Frobenius manifold, it is possible to use a global spectral curve, known as Dubrovin’s superpotential, which produces the same correlation functions via topological recursion. In both cases the spectral curves built out of the data of the Frobenius manifold are special, i.e. most spectral curves cannot arise this way. We can now ask the converse question: given a global spectral curve when does topological recursion produce a Frobenius manifold and can we describe the latter? In this lecture I will describe an answer to this question.

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