

WKB and the conformal limit

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Recent work of Dumitrescu–Mulase shows that topological recursion computes the WKB expansion for solutions of certain 2nd-order scalar ODEs defined on Riemann surfaces. A similar WKB expansion is crucially important in *joint work of D. Gaiotto, G. Moore and the author on Hitchin’s nonabelian Hodge* correspondence. The two situations both involve a spectral curve and appear very similar, but nevertheless they are not the same. I will explain a precise limiting process in which the flat connections arising in nonabelian Hodge theory limit to globally defined 2nd-order scalar ODEs; it seems likely that this limiting process relates these two WKB expansions as well.

This is joint work with O. Dumitrescu, L. Fredrickson, G. Kydonakis, R. Mazzeo and M. Mulase, establishing a conjecture formulated by D. Gaiotto.

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