

On the operad structure of admissible G -covers

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We describe the modular operad structure on the moduli spaces of pointed stable curves equipped with an admissible G -cover. To do this we are forced to introduce the notion of an operad colored not by a set but by the objects of a category. This construction interpolates in a sense between 'framed' and 'colored' versions of operads; we hope that it will be of independent interest. An algebra over this operad is the same thing as a G -equivariant CohFT, as defined by Jarvis, Kaufmann and Kimura. We prove that the (orbifold) Gromov-Witten invariants of global quotients $[X/G]$ give examples of G -CohFTs.

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