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Genus-2 generating functions for semisimple cohomological field theory

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An axiomatic definition of cohomological field thoeries (CFT) was introduced by Kontsevich and Manin. This thoery includes Gomov-Witten thoery and quantum singularity theory as special cases. The genus-0 part of a CFT introduces a Frobenius manifold structure. When the Frobenius manifold is semisimple, the genus-2 potential function can be solved from universal equations or Virasoro constraints. The solution depends on the so called canonical coordinates on the Frobenius manifolds. Recently B. Dubrovin, S. Liu, and Y. Zhang introduced the concept of genus-2 G-function which captures the most complicated part of the genus-2 potential function and conjectured that genus-2 G-function vanishes for quantum singularities of ADE type and orbifold Gromov-Witten theory of P^1 orbifolds of ADE type. In a joint work with Xin Wang, we gave a sufficient condition for the vanishing of the genus-2 G-function and proved the conjecture of Dubrovin-Liu-Zhang.
