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**Yingkun Li\*** ([li@mathematik.tu-darmstadt.de](mailto:li@mathematik.tu-darmstadt.de)), Schlossgartenstrasse 7, 64289 Darmstadt, Hessen, Germany. *Average values of higher Green's functions and their factorizations.*

By the classical theory of complex multiplication, the Klein  $j$ -invariant takes algebraic values at CM points. In their seminal work on singular moduli, Gross and Zagier gave a factorization of the difference between two such values, which can be viewed as the exponential of a special value of a Green's function on the upper half plane. From numerical computations, they conjectured that the special values of certain higher Green's functions also enjoy similar algebraicity property. We will revisit this conjecture and discuss some recent progress. (Received September 06, 2018)