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In 80's, Gross and Zagier proved the so-called striking Gross-Zagier formula and the Gross-Zagier factorization formula for singular moduli. In the process, they constructed some cool Green function of CM points. In the proof of the Moonshine conjecture in 90s, Borcherds constructed automorphic forms on some Shimura varieties using regularized theta liftings from weakly holomorphic modular forms. It turns out that this idea of regularized theta lifting (with a little generalization) can be used to construct Gross and Zagier's Green functions in more general Shimura varieties. They are very convenient to compute the CM values and Period integrals, can be used to prove high dimensional analogue of the Gross-Zagier formula and Gross-Zagier factorization formula. We will give a brief survey on this line of work. (Received August 10, 2015)