Algebraicity of Higher Green Functions at a CM Point

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By the classical theory of complex multiplication, the modular j-function takes algebraic values at CM points. It is an interesting question to ask about the algebraic nature of other types of automorphic functions at CM points. For the automorphic Green function at integral parameters, Gross and Zagier conjectured in the 1980s that their value at a CM point is essentially the logarithm of an algebraic number. In this talk, we will discuss recent progress toward this conjecture. This is partly joint with Jan Bruinier and Tonghai Yang.