

On CM values of modular functions that are S-units

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Two classical modular functions are the j invariant (which classifies elliptic curves) and the lambda invariant (which classifies elliptic curves plus a basis of the 2-torsion). We are interested in their CM values, that is the values they take on the set of imaginary quadratic numbers. When the functions are correctly normalized, these CM values are algebraic numbers. We show that for any finite set S of prime numbers, only finitely many CM values of the j invariant can be algebraic S -units. In stark contrast, it is well known that all of the CM values of the lambda invariant are 2-units. In this talk I will present results and conjectures towards the characterization of modular functions having only finitely many CM values that are S -units. This is joint work with Sebastián Herrero and Juan Rivera-Letelier.

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