Cube Sums and Explicit Formula

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Abstract

In this talk, we prove that for any given positive integer k, there are infinitely many cube free integers n with exactly k prime factors such that 2n is the sum of two rational cubes. The key is to construct non-trivial Heegner point. We also introduce explicit Gross-Zagier formula and Waldspurger formula and their application to construction of non-trivial Heegner points. This is a joint work with Li Cai and Jie Shu.