

Explicit elliptic units and an application

Ömer Küçüksakallı

In algebraic number theory, a central role is played by the unit group which is difficult to determine in general. There are two cases in which we can construct a subgroup of small index, namely the cyclotomic and elliptic cases. The group of cyclotomic units is well-understood and provides us with important arithmetic results. On the other hand elliptic units are relatively harder to work with. One difficulty is the existence of roots of unity in the transformation formulas of modular functions. In this talk, we will give a result which overcomes this problem for a wide range of number fields. Previously we have used similar computations to investigate the divisibility properties of class numbers of some abelian extensions of imaginary quadratic fields.