

1114-20-358

Amita Malik* (amalik10@illinois.edu), 1409 W Green Street, Urbana, IL 61801, and **Florin Stan** and **Alexandru Zaharescu**. *Siegel norm and character values of finite groups*.

Define the length of a cyclotomic integer α to be the smallest number of roots of unity which sum up to α . In 1969, Cassels showed that under certain assumptions, an algebraic integer in an abelian field can be represented as a sum of at most two roots of unity. Similar results can be obtained for (irreducible) character values of finite groups. An unpublished theorem of Thompson states that a character takes the value zero or has length one at more than one third of the (finite) group elements. We generalize these results for arbitrary length by establishing a connection between Siegel norm and the length function. In particular, we obtain a result dual to that of Burnside. This is joint work with Florin Stan and Alexandru Zaharescu. (Received September 01, 2015)