Online Number Theory Seminar

9 September 2022. – 17:00-17:50

Michel Waldschmidt: Number of integers represented by families of binary forms

An asymptotic estimate for the number of integers which are represented by a given binary form is due to Landau, Ramanujan and Bernays for positive definite quadratic forms and more recently by Stewart and Xiao for binary forms of higher degree. The purpose of this lecture is to consider the same problem for families of binary forms. In a joint work with Étienne Fouvry and Claude Levesque, we gave an asymptotic estimate for the number of integers which are represented by a cyclotomic form. With Étienne Fouvry we pursued this study for other families of binary forms with integer coefficients. Our main ingredient is an asymptotic upper bound for the cardinality of the set of values which are common to two non isomorphic binary forms of degree at least 3. We apply our results to some typical examples of families of binary forms.