MARGARET THOMAS, McMaster University/University of Konstanz
Effective Pila–Wilkie bounds for unrestricted Pfaffian surfaces

The counting theorem of Pila and Wilkie has become celebrated as one of the most important developments in o-minimality in recent years, with far-reaching consequences in diophantine geometry. It provides a subpolynomial bound on the number of rational points of bounded height lying on the 'transcendental parts' of sets definable in o-minimal expansions of the real field.

The proof of this theorem does not, however, provide an effective bound, and the pursuit of examples for which one can obtain this remains very active, with a view to number-theoretic applications. I will discuss some recent progress made (in joint work with Gareth O. Jones) on obtaining this in the particular setting of surfaces implicitly defined from Pfaffian functions. These sets have a natural notion of complexity, and we show that an effective bound can be obtained here which is uniform in that complexity. This uniformity is critical in allowing us to handle both restricted and unrestricted cases.