

Exposé court

102 *Sato-Tate conjecture in arithmetic progressions for certain families of elliptic curves*

Pujahari, Sudhir (National Institute of Science Education and Research (NISER))

In this talk we will study moments of the trace of Frobenius of elliptic curves if the trace is restricted to a fixed arithmetic progression. In conclusion, we will obtain the Sato-Tate distribution for the trace of certain families of Elliptic curves. As a special case we will recover a result of Birch proving Sato-Tate distribution for certain family of elliptic curves. Moreover, we will see that these results follow from asymptotic formulas relating sums and moments of Hurwitz class numbers where the sums are restricted to certain arithmetic progressions. This is joint work with Kathrin Bringmann and Ben Kane.