Abstract:
The shape of a degree $n$ number field is a $n - 1$-variable real quadratic form (up to equivalence and scaling) which keeps track of the lattice shape of its ring of integers relative to $\mathbb{Z}$. For number fields of small degree, in previous joint work with Bhargava, we showed that shapes of $S_n$-number fields are equidistributed, when ordered by absolute discriminant. The proof relies heavily on Bhargava’s parametrizations which introduces but ultimately ignores the notion of resolvent rings. This talk discusses work in progress, joint with Christelle Vincent, in which we define the joint shape of a ring and its resolvent ring in order to prove equidistribution of joint shapes of quartic fields and their cubic resolvent fields.

Special Note:
The speaker will give a preparatory lecture for graduate students and postdocs in the seminar room from 1:20-1:50pm.