Let $A$ be an abelian variety of dimension $g$ defined over a number field $K$. As defined by Serre, the Sato-Tate group $\text{ST}(A)$ is a compact subgroup of the unitary symplectic group $\text{USp}(2g)$ equipped with a map that sends each Frobenius element of the absolute Galois group of $K$ at primes $p$ of good reduction for $A$ to a conjugacy class of $\text{ST}(A)$ whose characteristic polynomial is determined by the zeta function of the reduction of $A$ at $p$. Under a set of axioms proposed by Serre that are known to hold for $g \leq 3$, up to conjugacy in $\text{USp}(2g)$ there is a finite list of possible Sato-Tate groups that can arise for abelian varieties of dimension $g$ over number fields.

For $g = 1$ there are 3 possibilities for $\text{ST}(A)$, for $g = 2$ there are 52, and last year it was shown that for $g = 3$ there are 410. In this talk I will give a brief overview of this classification and discuss ongoing efforts to produce explicit examples that realize these 410 possibilities. (Received September 15, 2020)