Abstract:

Various algebraic and topological situations give rise to compatible sequences of representations of different groups, such as the symmetric groups, with stable asymptotic behavior. Representation stability is a recent approach to studying such sequences, which has proved effective for extracting important invariants. Coming from this point of view, I will introduce the associated character theory, which formally explains many of the approach's strengths (in char 0). Central examples are simultaneous characters of all symmetric groups, or of all $\text{Gl}(n)$ over some finite field. Their mere existence gives applications to statistics of random matrices over finite fields, and raises many combinatorial questions.