October 14, 2015: Nate Harman (MIT), "Asymptotic periodicity in the modular representation theory of symmetric groups."

We define increasing filtrations of abelian subcategories $Rep^{\leq k}(S_n)$ on the categories of representations of S_n. Over a field of characteristic at least 5 we show that for fixed k and large n these subcategories only depend on n modulo a power of the characteristic, verifying a prediction of Deligne. As applications of this theory we obtain periodicity results for decomposition matrices, and quasi-polynomiality results for irreducible Brauer characters.