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Piecewise hereditary skew group algebras

The study of the representation theory of skew group algebras was started in the eighties with the works of de la Peña, and Reiten and Riedtmann. Given an algebra A and a group G acting on A, we define the skew group algebra $A[G]$. It turns out that $A[G]$ often retains many features from A, such as being representation-finite, being hereditary, being tilted or quasitilted, *etc*.

In this talk, we study the interplay between the skew group algebras and the so-called piecewise hereditary algebras, that is algebras A for which there exist a hereditary abelian category $\mathcal{H}$ and a triangle-equivalence between the derived categories of bounded complexes over A and $\mathcal{H}$. Those algebras, first studied by Happel, Rickard and Schofield and later by Happel, Reiten and Smalø, played a decisive role in the classification of selfinjective algebras of finite and tame representation type. We show that, under some assumptions, the skew group algebra $A[G]$ is piecewise hereditary when so is A.

The talk is based on joint work in progress with Julie Dionne and Marcelo Lanzilotta.