Noncommutative FGC-rings with local dimension

Mahdieh Naji

Isfahan University of Technology

Many studies have been conducted to characterize commutative rings whose finitely generated modules are direct sums of cyclic modules (called FGC rings), however, the characterization of noncommutative FGC rings is still an open problem, even for duo rings. We study FGC rings in some special cases, it is shown that a local Noetherian ring R is FGC if and only if R is a principal ideal ring if and only if R is a uniserial ring. With the help of this fact, we characterized Noetherian duo FGC rings. In fact, it is shown that a duo ring R is a Noetherian left FGC ring if and only if R is a Noetherian right FGC ring, if and only if R is a principal ideal ring. Because of being local play an important role in the characterization of FGC rings, we defined and studied local dimension. The local dimension is a measure of how far a coatomic module deviates from being local. Every Noetherian module has local dimension. We will discuss on Noetherian FGC rings with finite local dimension. (This is a joint work with A. Ghorbani).