

Regular and biregular smash products

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Abstract

In 1936, John von Neumann introduced a regularity conditions on rings which he subsequently used in his study of continuous geometry. Group rings which are regular in the sense of von Neumann were completely characterised by Auslander, McLaughlin and Villamayor in the 1950's. Alfaro, Ara and del Rio considered regular skew group rings in 1995. In this talk we will discuss von Neumann's regularity condition for smash products of Hopf algebra actions. We shall also discuss biregularity in the sense of Kaplansky and Arens (Transactions AMS, 1948).