On the Ziegler Spectrum of a Group Ring

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This is an abstract of joint work with Mike Prest (Manchester) and Annalisa Marcja (Florence) [MPT].

Let R be a Dedekind domain, G be a finite group. We consider R-torsionfree modules over the group ring RG and we study their Ziegler topology. First we show that, for every R-torsionfree N in the Ziegler space ZG_{RG}, either N is injective and simple, or there is some maximal ideal P of R such that N is a reduced point in $Zg_{R_P}G$ where R_P denotes the completion of the localization of R at P. In the latter case, the induced topology over RG or over R_PG is the same. So we examine R_PG for a given P. We see that a reduced torsionfree N in Zg_{R_PG} is in the closure of finitely generated points (i. e. R_PG-lattices) and is "almost" isolated and closed. We analyse the case when R_PG-lattices are a classe of finite representation type, in particular when the order of G is not in P. Finally we discuss the role of RG-lattices within Zg_{RG}.

[MPT] A. Marcja-M. Prest-C. Toffalori, *The torsionfree part of the Ziegler spectrum of RG when R is a Dedekind domain and G is a finite group*, preprint

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