

Sofic mean length

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For a unital ring R , a length function on left R -modules assigns a (possibly infinite) nonnegative number to each module being additive for short exact sequences of modules. For any unital ring R and any group G , one can form the group ring RG of G with coefficients in R . The modules of RG are exactly R -modules equipped with a G -action. I will discuss the question of how to define a length function for RG -modules, given a length function for R -modules. An application will be given to the question of direct finiteness of RG , i.e. whether every one-sided invertible element of RG is two-sided invertible. This is based on joint work with Bingbing Liang.