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Some remarks on local spectral synthesis on varieties

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Let G be an abelian group and $\mathcal{C}G$ the set of complex valued functions on G . Laczkovich proved that G , provided the torsion free rank of G is at most countable, every closed submodule of $\mathcal{C}G$ is generated by the local polynomials contained in it. Furthermore, there is a cardinal $\omega_1 \leq \kappa \leq 2^\omega$ such that local spectral synthesis holds on G if and only if the torsion free rank of G is less than κ . In the talk, we will reformulate local spectral synthesis on G as a problem about 2-cocycles on certain quotient rings of the group algebra $\mathbb{C}[G]$ and try to use the results to pinpoint the cardinal κ .

REFERENCES

- M. Laczkovich, Local spectral synthesis on abelian groups, *Acta Math. Hung.* 143 (2) (2014), 313–329.
- B. Wilkens, A characterisation of local N -rings and an application to abstract harmonic analysis *J. Commutat. Algebra* 15 (2023) 287–302.