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Local spectral synthesis from a ring- theoretic perspective

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Let G be an Abelian group. In his 2014 paper [Acta Math. Hungar. 143 (2014), no. 2, 313—329], *M. Laczkovich* considered the property of local spectral synthesis on G; this holds if every variety on G is the closure of the linear span of the local polynomials it contains. Local polynomials are functions restricting to a polynomial on any finitely generated subgroup of G.
We provide an alternative proof of Lazckovich's result that there is a cardinal κ with $\aleph_0 < \kappa < 2^{\aleph_0}$ such that local spectral synthesis pertains on G if and only if the torsion free rank of G is less than κ. We consider subdirectly irreducible quotients of localisations of $\mathbb{C}G$ and use extension theory of commutative rings. Our result extends to a characterisation of "locally synthesizable" individual varieties. In conclusion, we discuss a somewhat esoteric question: In a world where the continuum hypothesis fails, what more can be said about κ?