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Noncommutative spectral synthesis for the involutive Banach algebra associated with a topological dynamical system

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If X is a compact Hausdorff space, supplied with a homeomorphism, then a crossed product involutive Banach algebra is naturally associated with these data. If X consists of one point, then this algebra is the group algebra of the integers. In this paper, we study spectral synthesis for the closed ideals of this associated algebra in two versions, one modeled after C(X), and one modeled after the group algebra of the integers. We identify the closed ideals which are equal to (what is the analogue of) the kernel of their hull, and determine when this holds for all closed ideals, i.e., when spectral synthesis holds. In both models, this is the case precisely when the homeomorphism has no periodic points.

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