

Big bases

Ben Mathes, Colby College, USA

G. Kalisch showed how to construct an operator whose spectrum consists entirely of point spectrum and equals an arbitrarily prescribed compact subset of the plane. We give a new proof of this result and generalize it, revealing its relation to Banach algebras and the theory of strictly cyclic algebras. Our generalization is the following: given any compact subset of Euclidean space, we construct an abelian semisimple strictly cyclic algebra whose Gelfand spectrum is homeomorphic to that compact set.