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By Vitaly Bergelson; Randall McCutcheon

## An Ergodic IP Polynomial Szemerédi Theorem (Memoirs of the American Mathematical Society)

American Mathematical Society, 2000. Paperback. Book Condition: New. Brand new. We distribute directly for the publisher. We prove a polynomial multiple recurrence theorem for finitely many commuting measure preserving transformations of a probability space, extending a polynomial Szemerédi theorem appearing in [BL1]. The linear case is a consequence of an ergodic IP-Szemerédi theorem of Furstenberg and Katznelson ([FK2]). Several applications to the fine structure of recurrence in ergodic theory are given, some of which involve weakly mixing systems, for which we also prove a multiparameter weakly mixing polynomial ergodic theorem. The techniques and apparatus employed include a polynomialization of an IP structure theory developed in [FK2], an extension of Hindman's theorem due to Milliken and Taylor ([M], [T]), a polynomial version of the Hales-Jewett coloring theorem ([BL2]), and a theorem concerning limits of polynomially generated IP-systems of unitary operators ([BFM]).

### Reviews

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