

On a Multiparameter Bellow-Furstenberg Problem

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Abstract. In the early 1980s, Alexandra Bellow, motivated by some equidistribution problems, asked whether the pointwise ergodic theorem holds for ergodic averages with orbits along squares of any other polynomial with integer coefficients. The same problem was posed by Furstenberg, who approached it from a combinatorial perspective. This problem was affirmatively solved by Bourgain in the late 1980s by employing tools from Fourier analysis and using the circle method from number theory. Immediately afterward, Bourgain attempted to adapt his methods to the multiparameter variant of the Bellow-Furstenberg problem, but it turned out to be very complicated, and there has been little progress on this problem since that time until recently. The purpose of this talk will be to report on recent advancements regarding the multiparameter variant of the Bellow-Furstenberg problem.