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Bryna Kra*, Department of Mathematics, Northwestern University, 2033 Sheridan Road,
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Almost periodic sequences arise naturally in understanding the ordinary correlation sequence. In a similar way, nilsequences arise in understanding multicorrelation sequences. I will explain how 2-step nilsequences are a generalization of almost periodic sequences. Nilsequences, and more generally nilsystems, play an important role in recent advances in combinatorial ergodic theory and in additive combinatorics; I will discuss some of these results. (Received July 30, 2007)