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Pair Correlation of Fractional Parts Derived from Rational Valued Sequences.

We investigate the pair correlation of the sequence of fractional parts of αx_n , $n \in \mathbb{N}$, where x_n is rational valued and α is a real number. As examples, we offer two classes of sequences x_n whose pair correlation behaves as that of random sequences for almost all real numbers α . First, sequences of the form $x_n = a_n/b_n$ where a_n is lacunary and b_n satisfies a certain growth condition. Second, sequences of the form $x_n = g^n/2^{\omega(n)}$ for a positive integer g which is not a power of 2 and where $\omega(n)$ denotes the number of distinct prime factors of n . We complement these results with a discussion on rational valued vector sequences. (Received September 15, 2015)