Vitaly Bergelson (vitaly@math.ohio-state.edu) and Joel Moreira* (moreira@math.ohio-state.edu). On \{x + y, xy\} patterns in large sets of infinite fields.

An old and fundamental open question in combinatorial number theory asks whether, for an arbitrary finite partition \(\mathbb{N} = C_1 \cup \cdots \cup C_r\) of the natural numbers, there exist \(x, y \in \mathbb{N}\) whose sum \(x + y\) and product \(xy\) both belong to the same \(C_i\). In a recent joint work with Vitaly Bergelson we answer an analogue of this question in infinite fields, using ergodic theory methods pioneered by Furstenberg. (Received January 19, 2015)