1113-37-259 **Vitaly Bergelson** and **Joel Moreira*** (moreira.6@osu.edu). *Actions of the affine semigroup of certain rings and* $\{x+y, xy\}$ *patterns.*

A famous open problem in Ramsey theory states that any finite partition/coloring of the natural numbers $\mathbb{N}$ yields infinitely many monochromatic patterns of the form $\{x+y, xy\}$. Using a version of Furstenberg's correspondence principle, an analogue of this problem, with $\mathbb{N}$ replaced with a countable field, can be approached using ergodic theoretical techniques. We use a modification of this approach, with the more classical Cesàro limits replaced with limits along certain ultrafilters, to prove, in particular, that for any finite coloring of the set of rational numbers $\mathbb{Q}$ there infinitely many monochromatic configurations of the form $\{x+n, xn\}$ with $x \in \mathbb{Q}$ and $n \in \mathbb{N}$. This talk is based on joint work with Vitaly Bergelson. (Received August 24, 2015)