

Szemerédi strikes back

Date Tuesday, October 16

Time 3:00 pm

Location 303 Mudd

Abstract: By an argument reminiscent of Furstenberg's original ergodic theoretic proof for Szemerédi's Theorem on arithmetic progressions, Furstenberg and Weiss (2003) proved the following result. For every k and l , there exists an integer $n(k,l)$ such that no matter how we color the vertices of a complete binary tree of depth $n(k,l)$ with k colors, it always contains a monochromatic equispaced complete binary subtree T' of depth l . Furstenberg and Weiss also established several density versions of the above results, generalizing Szemerédi's Theorem. We show that all of these results can be obtained by elementary combinatorial arguments, using Szemerédi's classical theorem itself. Joint work with J. Solymosi and G. Tardos.