1145-03-1150   **Nate Ackerman*** (`nate@math.harvard.edu`). *Irregular Pairs in Structures with Bounded VC Dimension.*

In Szemerédi's regularity lemma for graphs there are three parameters which measure the complexity of a regularity partition: the amount of regularity, the size of the partition, and the number of irregular pairs of parts in the partition. Suppose we fix an amount of regularity ϵ and a class of finite graphs C. Let $f_{\epsilon,C}$ be the function whose input is a partition size k and whose output is the least value ℓ such that every element of C has an ϵ-regular partition of size k with at most ℓ irregular pairs.

In this talk we will review what is known about $f_{\epsilon,C}$ for various classes C. In the case where C is a collection of graphs of VC dimension at most d, we will provide an upper bound on $f_{\epsilon,C}$ that depends on d and is strictly better than the general case. These results generalize to finite structures in arbitrary finite relational languages.

This is joint work with Cameron Freer and Rehana Patel (Received September 24, 2018)