1161-05-238 **Anton Bernshteyn*** (bahtoh@gatech.edu) and **Clinton T. Conley** (clintonc@andrew.cmu.edu). *Equitable colourings of infinite graphs.*

A proper k-coloring of a finite graph G is called equitable if every two color classes differ in size at most by one. In particular, if G has n vertices and k divides n, then in an equitable k-coloring of G every color class has size exactly n/k. There is a natural way to extend this definition to infinite graphs on probability spaces. Namely, if G is a graph whose vertex set $V(G)$ is a probability space, then a proper k-coloring of G is equitable when every color class has measure $1/k$. In this talk I will discuss extensions of some classical results about equitable colourings to this setting, including an infinite version of the Hajnal–Szemerédi theorem on equitable k-colorings for $k \geq \Delta(G) + 1$. This is joint work with Clinton T. Conley. (Received August 17, 2020)