1112-60-448 **Shankar Bhamidi*** (bhamidi@email.unc.edu), 304 Hanes Hall, Dept of Statistics and OR, University of North Carolina, Chapel Hill, NC 27599. *Continuum scaling limits of critical inhomogeneous random graph models.*

Over the last few years a wide array of random graph models have been postulated to understand properties of empirically observed networks. Most of these models come with a parameter t (usually related to edge density) and a (model dependent) critical time t_c which specifies when a giant component emerges. There is evidence to support that for a wide class of models, under moment conditions, the nature of this emergence is universal and looks like the classical Erdos-Renyi random graph, in the sense that (a) the sizes of the maximal components in the critical scaling window scale like $n^{2/3}$, and (b) the structure of components in this window (rescaled by $n^{-1/3}$) converge to random fractals related to the continuum random tree. We will describe a general program for proving such results. The program requires three main ingredients: (i) in the critical scaling window, components merge approximately like the multiplicative coalescent (ii) scaling exponents of susceptibility functions (including distance based susceptibility) are the same as the Erdos-Renyi random graph and (iii) macroscopic averaging of expected distances between random points in the same component in the barely subcritical regime. (Received August 10, 2015)