

# LARGE DEGREES IN WEIGHTED RECURSIVE GRAPHS WITH RANDOM BOUNDED WEIGHTS

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ABSTRACT. We consider the weighted recursive graph model (WRG), an evolving random graph model where vertices are assigned positive, i.i.d. vertex-weights, and where at each step a new vertex is introduced which connects to existing vertices with a probability proportional to their vertex-weights. This model can be interpreted as the random recursive tree in a random environment or directed acyclic graph in random environment (the multigraph case). In this talk, we investigate the particular case in which the vertex-weights are almost surely bounded. More precisely, we discuss the behaviour of the degree distribution, the asymptotic size of the maximum degree and the asymptotic size of the labels of vertices which attain the maximum degree. Results relating to the latter property in particular were only recently proved for the random recursive tree by Banerjee and Bhamidi, which we improve as well as extend to the more general WRG model. Moreover, we identify several classes of vertex-weight distributions in which different higher-order behaviour of the maximum degree can be observed.