Conformal graph directed Markov systems (CGDMSs): beyond finite irreducibility

Abstract: We introduce CGDMSs which are not necessarily finitely irreducible. We do this from two different perspectives: by investigating irreducible infinite systems and by examining general (i.e. potentially reducible) finite systems. In this latter case, we derive a necessary and sufficient condition under which the Hausdorff measure of the limit set is positive and finite. We further show that if this condition doesn't hold then the Hausdorff measure, though infinite, is σ-finite. We also demonstrate that the pressure and Hausdorff dimension of the limit set are completely determined by the strongly connected components.