

Dynamics of correspondences and products of random matrices

Lucas Kaufmann ¹

¹ National University of Singapore

Let X be a compact Riemann surface. A holomorphic correspondence f on X is a multi-valued holomorphic map from X to itself. Each point of X has d images and d' pre-images counting multiplicity. As in the case of maps, we can iterate f and study its dynamics. When d and d' are different the global dynamics of f is well understood and f admits a canonical invariant probability measure.

In this talk I will present some results concerning the case $d = d'$. We show that, under a mild and necessary condition that we call non weak modularity, f admits two canonical probability measures μ^+ and μ^- which are invariant by f^* and f_* respectively. These measures enjoy many good properties and describe the distribution of images and pre-images of f .

As an application, we can consider group actions on the Riemann sphere. In that case we recover and improve some classical results about products of random two by two matrices. This is joint work with T.-C. Dinh and H. Wu.