

# Fixed point theorems for dynamical systems on Teichmueller spaces and beyond

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Fixed point theorems play a prominent role in many branches of mathematics and in particular in the study of conformal dynamics and geometry. For example, determining the existence of fixed points for holomorphic maps on Teichmueller spaces serves as a framework for proving ‘geometrization’ theorems such as Thurston’s topological characterization of post-critically finite rational maps on the sphere.

In this talk we will address the question of existence of fixed points for holomorphic self-maps on complex domains and show that, under some mild conditions on the geometry of the domain, any holomorphic map with a recurrent orbit has a fixed point — this applies in particular to all finite dimensional Teichmueller spaces. We will also discuss how simple combinatorial ideas can be used to prove a similar fixed point theorem for general metric spaces.