1087-37-117 **Romain Aimino**, **Matthew Nicol*** (nicol@math.uh.edu) and **Sandro Vaienti**. *Limit theorems for annealed and quenched dynamics.*

Suppose we have a countable set of maps $\{T_i\}$, $i \in S$ is an index set. The maps $T_i : X \to X$ act on a metric space X which supports a probability measure m. We choose the maps independently according to a probability measure μ on S. This gives rise to a random dynamical system which may be modeled as a skew-product on $X \times S^Z$, with skew-product map $F(x,\omega) = (T_{\omega_0}x, \sigma\omega)$ where $\omega = (\omega_0, \omega_1, \ldots, \omega_n, \ldots) \in S^Z$ and σ is the shift map, $\sigma\omega = (\omega_1, \omega_2, \ldots, \omega_n, \ldots)$.

Annealed dynamics refers to the skew-product defined on the product space $X \times S^Z$ according to the product measure $m \times \mu^Z$. Quenched dynamics consists in fixing $\omega \in \Omega$ and looking at the behavior of the resulting composition of maps.

We give conditions under which an annealed transfer operator has a spectral gap on a suitable Banach space and using this to establish annealed and quenched versions of central limit theorems, large deviations results and dynamical Borel-Cantelli lemmas. Applications include settings where the chosen maps may include non-uniformly expanding and intermittent type maps. (Received December 01, 2012)