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**Romain Aimino, Matthew Nicol\*** (nicol@math.uh.edu) and **Sandro Vaienti**. *Annealed and quenched limit theorems for random expanding systems.*

Suppose we choose maps  $\{T_i\}$  independently according to a probability measure  $\mu$  on  $S$ . The maps  $T_i : X \rightarrow X$  act on a metric space  $X$  which supports a probability measure  $m$ . This gives rise to a random dynamical system which may be modeled in a standard way as a skew-product. Annealed dynamics refers to the skew-product dynamics defined on the product space  $X \times S^{\mathbb{Z}}$  according to the product measure  $m \times \mu^{\mathbb{Z}}$ . Quenched dynamics consists in fixing  $\omega \in \Omega$  and looking at the behavior of the resulting fixed 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 other statistical properties. Applications include settings where the chosen maps may include non-uniformly expanding and intermittent type maps. (Received September 04, 2013)