

## Sampling the Fermi statistics

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### **Abstract:**

Through a Metropolis-like algorithm with single step computational cost of order one, we build a Markov chain that relaxes to the canonical Fermi statistics for  $k$  non-interacting particles among  $m$  energy levels. Uniformly over the temperature as well as the energy values and degeneracies of the energy levels we give an explicit upper bound with leading term  $km \ln k$  for the mixing time of the dynamics. We obtain such construction and upper bound as a special case of a general result on (non-homogeneous) products of ultra log-concave measures (like binomial or Poisson laws) with a global constraint. This general result is based on an elementary coupling argument. This is a joint work with J. Reygner.