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Edgardo Ugalde* (ugalde@ifisica.uaslp.mx), Av. Manuel Nava 6, Zona Universitaria, 78290 San Luis Potosí, S.L.P., Mexico. *Zero-temperature limit of one-dimensional Gibbs states.*

Let A be a finite set and $\phi : A^{\mathbb{Z}} \rightarrow \mathbb{R}$ be a locally constant potential. For each $\beta > 0$ (“inverse temperature”), there is a unique Gibbs measure $\mu_{\beta\phi}$. We prove that, as $\beta \rightarrow +\infty$, the family $(\mu_{\beta\phi})_{\beta>0}$ converges (in weak-* topology) to a measure we characterize. It is concentrated on a certain subshift of finite type which is a finite union of transitive subshifts of finite type. The two main tools are an approximation by periodic orbits and the Perron-Frobenius Theorem for matrices à la Birkhoff. The crucial idea we bring is a “renormalization” procedure which explains convergence and provides a recursive algorithm to compute the weights of the ergodic decomposition of the limit. (Received April 14, 2010)