1086-37-1427     **May Mei*** (`mmei@math.uci.edu`), Department of Mathematics, University of California, Irvine, Irvine, CA 92697-3875. *Discrete Schrödinger Operators with Primitive Invertible Substitution Potential.*

The Nobel Prize-winning discovery of quasicrystals has spurred much work in aperiodic sequences and tilings. Here, we consider one-dimensional discrete Schrödinger operators with potentials given by primitive invertible substitutions on two letters, which are a one-dimensional model of quasicrystals. Using tools from hyperbolic dynamics to study the trace map of these operators, we are able to show that as the coupling constant tends to zero, the thickness of the spectrum tends to infinity and thus the Hausdorff dimension of the spectrum tends to one. We also show that when the coupling constant is small, all gaps allowed by the gap labeling theorem are open, and further, open linearly. (Received September 23, 2012)