1096-37-2145 **May Mei***, Department of Mathematics, Denison University, P.O. Box 810, Granville, OH 43023-0810. *Modeling Quasicrystals with Substitution Sequences and Tilings.*

The Nobel Prize-winning discovery of quasicrystals has spurred much work in aperiodic sequences and tilings. The symbolic dynamics of sequences invariant under primitive invertible substitutions on two letters underlie our previous work involving one-dimensional discrete Schrödinger operators. Here, we present preliminary numerical experiments conducted by undergraduates at the Summer Math Institute at Cornell under our supervision including numerical data on the spectrum of operators with potentials given by the Thue-Morse sequence and period doubling sequence, as well as numerical data on the spectrum of the discrete Laplacian on the Penrose tiling and octagonal tiling. Furthermore, we will discuss generalizations to more general substitution sequences. (Received September 17, 2013)