1023-81-1884 **Jonathan Harrison*** (jon@math.tamu.edu), Department of Mathematics, Texas A&M University, College Station, TX 77843-3368. *The spectral form factor for quantum graphs with spin-orbit coupling.*

We consider quantum graphs with spin-orbit coupling at the vertices. Time-reversal invariance implies that the bond S-matrix is in the orthogonal or symplectic symmetry class, depending on spin quantum number s being integer or half-integer, respectively. The periodic-orbit expansion of the spectral form factor is shown to acquire additional weights from spin rotations along orbits. We determine the spin contribution to the coefficients in an expansion of the form factor from properties of the representation of the group of spin transformations on the graph. Consistency with the Circular Orthogonal and Circular Symplectic Ensemble, respectively, of random matrices is obtained. (Received September 27, 2006)