1068-35-61 **William Green***, 600 Lincoln Ave., Charleston, IL 61920. *Dispersive estimates for matrix and scalar Schrödinger operators in dimension five.*

We study the non-selfadjoint matrix Schrödinger operator

$$\mathcal{H} = \begin{bmatrix} -\Delta + \mu - V_1 & -V_2 \\ V_2 & \Delta - \mu + V_1 \end{bmatrix}$$

in dimension five. This operator arises when linearizing about standing wave solutions in certain non-linear partial differential equations. Here $\mu > 0$ and V_1, V_2 are real-valued decaying potentials. We examine the boundedness of the evolution operator $e^{it\mathcal{H}}$ in the sense of $L^1 \to L^\infty$.

We prove $L^1 \to L^\infty$ dispersive estimates for the matrix operator that are analogous to the known estimates for the evolution of the scalar Hamiltonian $H = -\Delta + V$. We show that if P_c is projection away from the eigenvalues of $\mathcal{H}$, along with standard assumptions on the spectrum of $\mathcal{H}$,

$$\|e^{it\mathcal{H}} P_c\|_{1\to\infty} \lesssim |t|^{-5/2}$$

holds with optimal assumptions on regularity of the potentials. We further discuss an improvement on the decay assumptions for the scalar case. (Received January 10, 2011)