1040-35-29 **Fernando Cardoso*** (fernando@dmat.ufpe.br), Estrada das Ubaias, 311, apto 801-A, Casa Forte, Recife, Pernambuco 52061-080, Brazil, and **Georgi Vodev** (georgi.vodev@math.univ-nantes.fr), Département de Mathématiques, UMR 6629 du CNRS, 2, Rue de la Houssiniere, BP 92208, 44332 Nantes, Loire, France. *Optimal dispersive estimates for solutions of the Schrödinger equation in dimension four.*

We prove optimal (that is, without loss of derivatives) dispersive estimates for the Schrödinger group $e^{it(-\Delta+V)}$ for a class of real-valued potentials $V \in C^{\nu}(\mathbf{R}^4)$, $V(x) = O(\langle x\rangle^{-\delta})$ with some $\nu > 1/2$, $\delta > 3$. More precisely, we prove the estimate

$$\left\|e^{it(-\Delta+V)}P_{ac}\right\|_{L^1\to L^\infty} \le C|t|^{-n/2},$$

with $n = 4$, if we suppose in addition that zero is neither a resonance nor an eigenvalue, where P_{ac} is the spectral projection onto the absolutely c ontinuous spectrum of $-\Delta + V$. We expect that such an estimate is valid in all dimensions $n \ge 4$ for real-valued potentials $V \in C^{\nu}(\mathbf{R}^n)$, $V(x) = O(\langle x\rangle^{-\delta})$ with some $\nu > (n-3)/2$, $\delta > n-1$.

Presented by Fernando Cardoso (Received January 7, 2008)