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William Green* (green@rose-hulman.edu), 5500 Wabash Ave., Terre Haute, IN 47803, and
Burak Erdogan and **Ebru Toprak**. *The fourth order Schrödinger equation: dispersive estimates and zero energy resonances.*

The fourth order Schrödinger operator $H = (-\Delta)^2 + V$ is an example of a “high dispersion” model with applications in the propagation of laser beams. We study the effect of a short range potential V in three space dimensions. We provide a full classification of zero energy resonances and study the dynamic effect of each on the $L^1 \rightarrow L^\infty$ dispersive bounds. In all cases, we show that the natural $|t|^{-\frac{3}{4}}$ decay rate may be attained, though for some resonances this requires subtracting off a finite rank term, which we construct and analyze. The classification of these resonances, as well as their dynamical consequences differ from the more extensively studied Schrödinger operator $-\Delta + V$. The talk will survey joint works with E. Toprak (Rutgers) and B. Erdoğan (Illinois). (Received August 28, 2019)