

Abstract Submitted  
for the MAR13 Meeting of  
The American Physical Society

**Orbital Angular Momentum as Manifestation of Photonic Zitterbewegung** BASIL DAVIS, Tulane University — The phenomenon of photonic orbital angular momentum has received considerable attention since its theoretical prediction by Allen et al in 1992. It has been established theoretically and experimentally that laser beams with a Laguerre Gaussian profile possess angular momentum in addition to their intrinsic spin angular momentum. A parallel development has been the renewed interest in zitterbewegung, first predicted for relativistic electrons by Schrodinger. It is now known that zitterbewegung is a property of all particles, regardless of spin, charge or rest mass, since it is basically a quantum mechanical phenomenon. Recently there has arisen an interest in photonic zitterbewegung. This paper shows that photonic orbital angular momentum is one experimentally observable manifestation of photonic zitterbewegung.

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Date submitted: 06 Nov 2012

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