

Abstract Submitted
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The Travelling Wave Group – 5 Departures from Dirac’s Principles ANTONY J. BOURDILLON, UHRL — The Traveling Wave Group (TWG) for a free particle is written, $\psi = A(X^2/2\sigma^2 + X)$. Here, $X = i(kx - \omega t)$, σ is an experimental initial value, with A a normalizing constant dependent on it, while ω is the mean angular frequency, and \mathbf{k} the mean wave vector. Unlike Dirac’s unstable wave packet; the TWG is stable. From it, the following are derived: the Uncertainty Principle [1]; Planck’s law; the de Broglie hypothesis; phase velocity; pseudo mass M' [2]; conservation of M’PT [3]; 5-dimensional space; mass as a local excess of energy over momentum [4]; an explanation for entanglement at a distance, etc.

[1] Bourdillon, A.J., *J. Mod. Phys.* **3** 290-296 (2012), DOI 10.4236/jmp.2012.33041 (open source).

[2] Bourdillon, A.J., *J. Mod. Phys.* **4** 705-711 (2013), DOI 10.4236/jmp.2013.46097 (open source).

[3] Bourdillon, A.J., A travelling wave group III, conservation of M’PT, submitted to *Phys. Rev. & Res. Int.* (open source).

[4] Bourdillon, A.J., A traveling wave group and consequences, *2013 Annual meeting of the CA-NV section of the APS.*

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