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The Uncertainty Principle v wave mechanics - conflict seen via the stable wave packet. ANTONY BOURDILLON, UHRL, www.xraylithography.us — The traveling wave group that is defined on conserved physical values is the vehicle of transmission for a unidirectional photon or free particle having a wide wave front. As a stable wave packet, it expresses internal periodicity combined with group localization. Heisenberg's Uncertainty Principle is precisely derived from it, though significant conflict between the Principle and wave mechanics is apparent. Also derived is the phase velocity beyond the horizon set by the speed of light. In this space occurs the reduction of the wave packet which occurs in measurement and which is represented by comparing phase velocities in the direction of propagation with the transverse plane. The new description of the wavefunction for the stable free particle or antiparticle contains variables that were previously ignored. Deterministic physics must always appear probabilistic when hidden variables are bypassed. Secondary hidden variables always occur in measurement. The wave group turns out to be probabilistic. It is ubiquitous in physics and has many consequences.

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