

Abstract Submitted
for the NES05 Meeting of
The American Physical Society

Realizing Einstein's Dreams: Unifying Gravity and Light, and Why Quantum Mechanics is Weird DOUGLAS SWEETSER — Einstein dreamed of unifying gravity and light. If Nature is logically consistent, then the equation that governs how two electrical charges with opposite signs attract must apply to two positive mass charges attracting. Einstein wondered why quantum mechanics had to be the way it is. The riddle is resolved by a merger: calculus applied to events in 4D spacetime using quaternions. The double limit definition of a quaternion derivative splits into two. In one ordering of limits, a directional derivative along the real axis results. This maintains classical time-ordered causality. In the other ordering, only a normed derivative can be defined. The sum over all possible histories contribute to make up a normed derivative.

Douglas Sweetser

Date submitted: 25 Feb 2005

Electronic form version 1.4