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Planck's Energy Constant JULIANA BROOKS, General Resonance, LLC — Planck's proportionality constant "h" is <u>not</u> an action constant. Re-examination of Planck's work has revealed the numerical value for his famous constant "h" is actually an *energy* constant.* Planck's *energy* constant is the mean energy of a single oscillation of electromagnetic energy, namely 6.626 X 10^{-34} J/osc. The misinterpretation of Planck's constant resulted from an inadvertent mathematical procedure in his 1901 black-body derivation. Planck's energy constant is found in his original (1897) quantum relationship: E $\approx$ a ν t_m where energy ("E") is proportional to the product of a constant ("a", energy per oscillation), the frequency ("ν"), and the measurement time ("t_m"). Planck's inadvertence fixed the measurement time variable "t_m" at a value of one second, and multiplied it by his constant "a", resulting in the product "h" which Planck proposed as the "*quantum of action*". Planck's black-body derivation and condensed quantum formula $E = h\nu$ were never knowingly premised on one second time intervals, however. Subsequent development of quantum mechanics thus took place against the back drop of a hidden assumption. Numerous paradoxes, problems and a lack of reality resulted. Recognition of Planck's *energy* constant provides a richer and more realistic interpretation of quantum mechanics. *Brooks, JHJ, "Hidden Variables: The Elementary Quantum of Light", The Nature of Light: What are Photons? III, Proc. of SPIE Vol. 7421, 74210T-3, 2009.

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