

# Physical Model of a Cognitive Observer

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**Abstract.** William James postulated that conscious experience is best described as a process. Whitehead assumed events or actual occasions are the fundamental building blocks of reality. A. Wheeler's conceived of the universe as an explanatory/measurement cycle between internal observations experienced by an observer and their assumed physical causes. I proposed, in Vigier IX, that internal forces between charge and mass balance the external forces of gravity-inertia and electricity-magnetism, thus providing a natural reality model inside the brain of any observer physicist. In further extensions of these ideas I will show how the architecture of quantum theory documents the human thought process, which when implemented in externalized laboratory procedures or internal to the human biological apparatus, provides us with a process model of the observer. I will show how action, the material of change, flows through world line structures and how such flow diagrams can be used to define both physical and mental activities. An interacting set of action cycles can then be used to show how sensory information is gathered, perceived, and processed into external commands when interacting with an internal cycle that maintains a memory model of the outside world. If Hough Everett's postulate that all systems are observers is applied, a new event oriented world view emerges. This view describes all systems as linear activities that receive, process, and radiate influences and shows how process loops can provide the physical implementation of self reference required for cognitive self-awareness. Though a process model of the observer is the main offering in this talk, a universe of interacting events is presented as an improved model of everything that suggests a macroscopic version of String Theory can be developed in which You and I are closed loops.

**Key Words.** Observer model, measurement explanation cycle, cognitive action theory, macroscopic string theory, structure of space, interpretations of quantum theory, charge-mass separation

**BIO:** Dr. Wolfgang Baer received his Ph.D. in Physics from the UC Berkeley. He started a computer graphics development company, has run a multimillion-dollar simulation laboratory for the US Army at Ft. Ord California, and held a research position at the Naval Postgraduate School in Monterey California, teaching courses in network programming and quantum information systems. Dr. Baer developed programs for unmanned aerial vehicles cognitive vision interpretation. His interest in cognitive brain functions has lead to publications exploring the physics of consciousness, real intelligence, and research applications directed toward the extension of cognitive brain capability beyond its normal limits.

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