Including an Observer Model in the Interpretation of Physics Experiments

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Abstract. The Observer Model, used for the interpretation of experimental results that underpin our physical theories, influences the very theories we believe to be supported by their objective observation. Much of the foundations of physics are based upon Observer Models that vary from 1) not included, to 2) objective eye witness, to 3) quantum observer, and onto 4) more advanced models in decreasing frequency of application. We will assume a process model of an observer; whose job is to interpret the results of experiments. This observer is no longer an abstract 3'd party observer whose presence has no influence on the experiment, but rather an integral part of the setup, execution, and interpretation of experimental results. As such properties of the observer and his involvement with the experiment must be carefully separated from the experiment itself to achieve independent objective interpretations. The "rose colored classes effect" ,as discussed by Sir Arthur Eddington's Fish story analogy, states that the most fundamental laws of nature will turn out to be the construction and methodology rules imposed by the observer himself. A failure to properly account for the observer can introduce properties into our theory of physical realty when they are actually imposed by our methods of investigation. That such confusion between observer characteristics and external objects of investigation may have happened in physics will be addressed by examining several foundational experiments. A partial list of foundational experiments would include

* the double slit experiment
* the Michelson-Morley experiment
* the Bell's Theorem Violation experiments
* the light bending, red shift measurement experiments
* Hadron Collider Experiments
* 3 deg. Black body background radiation experiments

Since the human observer is the final measuring instrument which collapses the wave function at the end of VonNeumann's measurement chain, and no one knows exactly how the brain works, it is possible that consistent observer characteristics have been introduced and falsely attributed to the systems being investigated. It is equally likely that the lengthening chain of theoretical explanations encountered in high energy physics and cosmological theories reflect our investigative and analytic techniques. This is certainly true of any theoretician who believes elegance of symbolic relationships automatically reflects real world characteristics. If a false projection of an observer characteristic, which may include his mathematical procedures, can be identified not only will a specific field of study be affected, but a new paradigm of an observer inclusive physics will emerge.

Keywords. Observer model, measurement explanation cycle, cognitive action 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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