

# **The Quantum Mechanics Measurement Problem: the Wigner's approach**

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Abstract:

This communication exposes the philosophical and personal intentions of the influential physicist Eugene P. Wigner when he led the solution of the measurement of Quantum Mechanics (QM) to their ultimate logical consequences. I mean, the role played by mind in quantum measurements. One wants to know which philosophical and personal motivations did lead him to propose such a singular solution to paradoxes concerning quantum measurements. I intend to present three axes to build a general schema of Wigner's views while unfolding the conceptual structure of the Standard or Orthodox Theory. These axes are: a pragmatic and convenient usage of physical concepts, a kind of idealism ("dualist reality", Wigner, 1964) regarding the mental construction of natural world supported by the orthodox interpretation of Quantum Mechanics - led to its ultimate consequences -, and the problem of objectivity in the QM. Through my presentation I intend to explain what Wigner meant when he used the term Orthodox Theory and how far his self-proclaimed positivistic view was indeed unique. Then, this communication shows how Wigner conceived the relation subject/object in a complex way, taking into account the role of observer in the quantum-mechanical measuring process. Moreover, I present not only the solution proposed by Wigner in the sixties but also how he, in the late seventies, was moving away from his proposal towards that previously presented by H. Dieter Zeh. Finally, my goal is to shed light on the historical and philosophical analyses (Marin, 2009, p. 808, and many examples are cited by Freire, 2007, footnote 1) about the Wigner's main philosophical ideas regards on foundations of Quantum Mechanical Measurement Theory.