

BOHM'S QUANTUM "NON-MECHANICS": AN ALTERNATIVE QUANTUM THEORY WITH ITS OWN ONTOLOGY?

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ABSTRACT.- Bohmian mechanics is generally regarded as a hidden-variable theory aimed at providing an *objective* description of quantum phenomena. Since its inception, this ontological aspect has been inherent to this formulation, although it might have caused more rejection than acceptance. Nevertheless, at present, its practical side is also gaining some land, which lead us to wonder whether its traditional interpretational aspect should still be the prevailing appraisal to the detriment of a more pragmatic view of a legitimate picture of quantum mechanics on equal footing in all respects with any other more conventional quantum picture? This contribution constitutes an attempt to provide some answer to this key question by emphasizing an alternative aspect of Bohmian mechanics, which allows us to understand it as an efficient and useful picture or formulation to tackle, explore, describe and explain quantum phenomena where phase and correlation (*entanglement*) are key elements. Some particular formal aspects of Bohmian mechanics supporting this view are thus presented here, with special emphasis on the physical meaning of the local phase field and the associated velocity field encoded within the wave function. As an illustration, a series of features related with a simple model of Young's two-slit experiment will be shown and discussed.