

Abstract Submitted
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On new phenomena of micro entity from modified double slits experiment HAISHENG LIU — A modified double slits experiment was implemented. The visibility of interference pattern is clearly shown and which way information is known simultaneously in the same experiment. Several very important conclusions can be derived from the experimental results. 1) The violation of Bohr's Principle of Complementarity(PC), especially the Englert-Greenberger duality relation of $P^2 + V^2 \leq 1$. 2) The particle and wave, in the term of quantum theory, are coexisted simultaneously. They are not mutual exclusive as PC. 3). Photon is not only a simple particle showing bright spot in the usual sense, which cause the click on the detector when photon hits on it or photon pass through one of the two slits, but also with something not observed before (invisible field, dark field, pilot wave, or empty wave, whatever you like to call or define it). 4) What we observed is the bright part, the invisible/dark part govern the motion of the bright part, what we call the photon currently. We also believe all of these new properties should be applicable to all other micro entity like electron, atoms, etc according L. de Broglie assumption. All of these properties will assure the quantum theory is incomplete theory and its related properties have to be reconsidered

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