Review of: "Relation Between Quantum Jump and Wave Function Collapse"

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In this very interesting work, the author considers one of the fundamental questions of Quantum Mechanics (QM), the measurement problem. As far as I understand it, the new interpretation includes diverse stages of the measurement process: a microscopic jump (MIJ) in which a microscopic portion of the measuring device selects an eigenvalue of the measured system, a microscopic particle (MIP), emitted by the detector and carrying information of the selected eigenvalue, and finally, if existent, a multiplication process triggered by the MIP that makes the transition to the classical domain.

To use a simple example, in the photon detection by a photographic plate presented in the author's paper, according to QM one should consider a superposition (determined by the relative orientations of polarizers 1 and 2) of the state in which a photon is transmitted by polarizer 2 and absorbed by the plate, and the state in which the photon is reflected by polarizer 2 and the plate is not affected. According to Von Neumann, only the observation of the plate by a conscious being would select either of the alternatives (wave-function collapse). According to Everett, both alternatives are realized, including the presence of the conscious observer, but in different worlds (no wave-function collapse).

The author, however, considers that the plate itself realizes the outcome; there is no superposition of states photon-plate, only a plate affected or not affected. My concern with this interpretation is that if the transition from a mixed to a pure state is done at this microscopic level, what is left of QM? For instance, what would happen to quantum computing?