

Abstract Submitted  
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**Reviving Complementarity: John Wheeler’s efforts to apply complementarity toward a quantum description of gravitation.** PAUL HALPERN, University of the Sciences in Philadelphia — In 1978, John Wheeler proposed the delayed-choice thought experiment as a generalization of the classic double slit experiment intended to help elucidate the nature of decision making in quantum measurement. In particular, he wished to illustrate how a decision made after a quantum system was prepared might retrospectively affect the outcome. He extended his methods to the universe itself, raising the question of whether the universe is a “self-excited circuit” in which scientific measurements in the present affect the quantum dynamics in the past. In this talk we’ll show how Wheeler’s approach revived the notion of Bohr’s complementarity, which had by then faded from the prevailing discourse of quantum measurement theory. Wheeler’s advocacy reflected, in part, his wish to eliminate the divide in quantum theory between measurer and what was being measured, bringing greater consistency to the ideas of Bohr, a mentor whom he deeply respected.

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