

Erasing the Past and Impacting the Future with Kaons at a Phi-factory

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Two hundred years ago Thomas Young taught us that photons interfere. Nowadays also experiments with very massive particles, like the fullerenes, have impressively demonstrated that fundamental feature of quantum mechanics. Later studies have shown that the knowledge on the path through the double slit is the reason why interference is lost. The gedanken experiment of Scully and Druhl in 1982 surprised the physics community, if the knowledge on the path of the particle is erased, interference is brought back again.

We first show two setups of a kaonic quantum eraser which are conceptually analog to performed photon experiments. However, for kaons we have two more setups which are only provided by this quantum system. These new possibilities prove in a new way the very concept of an eraser and moreover are testable at DAFNE.

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