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Towards solving the hypertriton lifetime puzzle with direct lifetime measurement: current status of J-PARC E73 experiment

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As the lightest hypernucleus, the hypertriton (3ΛH) provides essential knowledge for our understanding for the YN interaction. For a long time, hypertriton is expected to possess a similar lifetime as free Λ hyperon because it is a very loosely bound system (BΛ=130±50 keV). However, several recent heavy ion collision experiments announced surprisingly shorter lifetime (up to ~40%) for 3ΛH mesonic weak decay, which is regarded as the hypertriton lifetime puzzle. As a complementary approach of the heavy ion based experiment, we proposed a direct measurement for 3ΛH lifetime with 3He(K-, pi0)3ΛH reaction as J-PARC E73 experiment. This presentation will introduce the current status of J-PARC E73 experiment.

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