On the shorten hypertriton lifetime: Current experimental status and HypHI contribution

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In the recent years, several new experimental results on the lifetime of the hypertriton have shown a clear tendency to a shorter lifetime. Within the last five years, collaborations of relativistic heavy ion experiments have reported more precise lifetime measurement than the results of the previous last decades.

Those new experimental results taken separately show a short hypertriton lifetime, yet each single result could not be decisive. A combination similar to the PDG methodology can be used in order to improve the knowledge on the hypertriton lifetime and the precision of uncertainty. The current status of the experimental results shows a conclusive shortening of its lifetime, pressuring the theoretical model of the hypertriton (for instance references [1,2]) which did not predict nor explain those experimental evidences.

A first combined analysis was performed in 2014 in which the recent experimental results from STAR and HypHI collaborations [3,4] were included [5]. Now, additional results from ALICE [6], STAR [7] and HypHI collaborations show again shorten hypertriton lifetime. A new analysis combining all the available results will be presented. The new results of the HypHI collaboration on the hypertriton lifetime extracted from the experimental data of collisions of ^{20}Ne+^{12}C at 2 AGeV will be presented. The new effort to improve the precision of the in-flight spectroscopy of the hypertriton will conclude this contribution to HYP2015.

[1] W. Glöckle et al., Nucl. Phys. A **639** (1998) 297c

[2] H. Kamada et al., Phys. Rev. C **57** (1998) 1595

[3] STAR-Collaboration, Science **328** (2010) 58

[4] C. Rappold et al., Nucl. Phys. A **914** (2013) 519

[5] C. Rappold el al., Phys. Lett. B **728** (2014) 543

[6] ALICE collaboration, arXiv:1506.08453 (2015)

[7] Y.G. Ma for STAR collaboration, EPJ Conf. 66, 04020 (2014)