## E462 H. Outa Exclusive Measurement of the Non-Mesonic Weak Decay of ${}^{5}_{\Lambda}$ He

# E508 H.C.Bhang Coincidence Measurement of the Weak Decay of $^{12}{}_{\Lambda}C$

#### E462

V <b>-</b>	
Submitted	2000.3.7
Approved	2000.4.6
Beam line	K6
Shift requested	125
Shift executed	161.3
Executed cycles	00[5], 01[3-1,3-2]

#### E508

Submitted	2002.2.20
Approved	2002.3.18
Beam line	K6
Shift requested	80
Shift executed	80
Executed cycles	02[1,2]

## **Papers and activities**

[Legend]

- Physics papers published in refereed journal
- Technical papers
- ★ PhD theses
- ♦ Conference and Symposium
- \* Internal Report and others

### • S. Okada et al

Neutron and proton energy spectra from the non-mesonic weak decays of  ${}^{5}_{\Lambda}$ He and  ${}^{12}_{\Lambda}$ C Phys.Lett. B597, 249 (2004)

- B.H. Kang et al. Exclusive Measurement of the Non-Mesonic Weak Decay from <sup>5</sup><sub>Λ</sub>He Phys. Rev. Lett. 96 (2006) 062301
- M. J. Kim et al. Coincidence measurement of the nonmesonic weak decay of <sup>12</sup><sub>Δ</sub>C Phys. Lett. B641 (2006) 28-33
  T. Maruta et al.
  - Decay asymmetry in non-mesonic weak decay of light  $\Lambda$ -hypernuclei Eur. Phys. J. A 33, 255-258 (2007)
- H. Bhang et al.

The quenching of nucleon yields in the nonmesonic weak decay of  $\Lambda$ -hypernuclei and the three-body weak decay process

- Eur. Phys. J. A 33, 259-263 (2007)
- ★ S. Okada Non-mesonic Weak Decays of  ${}^{5}_{\Lambda}$ He and  ${}^{12}_{\Lambda}$ C Hypernuclei in ( $\pi^{+}$ , K<sup>+</sup>) Reactions Tokyo Institute of Technology, 2004.
- ★ B.H, Kang Nonmesonic Weak Decay of  ${}^{5}_{\Lambda}$ He hypernucleus

○ Technical papers.

<sup>•</sup> Physics papers published in refereed journal.

<sup>★</sup> PhD theses.

 $<sup>\</sup>diamond$  Conference and Symposium.

<sup>\*</sup> Internal Report and others.

Seoul National University, August 2004 ★ S. Kameoka Study of mesonic decay of  ${}^{5}_{\Lambda}$ He and  ${}^{12}_{\Lambda}$ C Tohoku University, March 2004 ★ M. Kim Nonmssonic Weak Decay of <sup>12</sup><sub>A</sub>C hypernucleus Seoul National University, February 2006 ★ T. Maruta Decay Asymmetry in Non-mesonic Weak Decay of Light  $\Lambda$  Hypernuclei The University of Tokyo, May 2006  $\diamond$  H. Outa et al. Weak Decay of Light S-shell Hypernulei  ${}^{4}_{\Lambda}$ H,  ${}^{4}_{\Lambda}$ He and  ${}^{5}_{\Lambda}$ He Proceedings of the "Electrophotoproduction of Strangeness in Nucleons and Nuclei (SENDAI03)" Sendai, June 15-18, 2003. World Scientific: 419-416 (2004) ♦ S. Okada et al Neutron Energy Soectra form the Non-Mesonic Weak Decay of  ${}^{5}_{\Lambda}$ He and  ${}^{12}_{\Lambda}$ C Hypernuclei Proceedings of the "Electrophotoproduction of Strangeness in Nucleons and Nuclei (SENDAI03)" Sendai, June 15-18, 2003. World Scientific: 417-420 (2004)  $\diamond$  B. H. Kang et al The n+p and n+n Coincidence Measurement of the Non-Mesonic Weak Decay of  ${}^{5}_{\Lambda}$ He Proceedings of the "Electrophotoproduction of Strangeness in Nucleons and Nuclei (SENDAI03)" Sendai, June 15-18, 2003. World Scientific: 421-425 (2004) ♦ T. Maruta et al. Asymmetry in Non-Mesonic Weak Decay of Light Hypernuclei Proceedings of the "Electrophotoproduction of Strangeness in Nucleons and Nuclei (SENDAI03)" Sendai, June 15-18, 2003. World Scientific: 426-429 (2004)  $\diamond$  S. Kameoka et al. Measurement of the  $\pi^{-}$  Decay Width of  ${}^{5}_{\Lambda}$ He Proceedings of the "Electrophotoproduction of Strangeness in Nucleons and Nuclei (SENDAI03)" Sendai, June 15-18, 2003. World Scientific: 430-433 (2004)  $\diamond$  H. Yim et al. Measurement of  $\pi^0$  Mesonic Decay Width ( $\Gamma\pi^0$ ) of  $\Lambda$  Hypernuclei,  ${}^5_{\Lambda}$ He and  ${}^{12}_{\Lambda}$ C Proceedings of the "Electrophotoproduction of Strangeness in Nucleons and Nuclei (SENDAI03)" Sendai, June 15-18, 2003. World Scientific: 434-438 (2004)  $\diamond$  H. C. Bhang et al. Non-mesonic weak decay of  ${}^{5}_{\Lambda}$ He and  ${}^{12}_{\Lambda}$ C and the effect of FSI on its observables. Proceedings of DAONE 2004: Physics at Meson Factories Frascati, June 7-11(2004), Frascati Physics Series Vol. XXXVI(2004), 243-248.  $\Diamond$  M. J. Kim et al. First Exclusive Measurement of the Non-Mesonic Weak Decay of <sup>12</sup> C Proceedings of DAONE 2004: Physics at Meson Factories Frascati, June 7-11(2004), Frascati Physics Series Vol. XXXVI(2004), 273-242  $\diamond$  H.C. Bhang et al. Hypernuclear Weak Decay Experiment at KEK: Nucleon Inclusive measurement Proc. Int. Conf. on Hypernuclear and Strange Particle Physics (HYP2003), Jefferson Lab., October 14-18, 2003, Nucl.Phys. A754, 144-156 (2005) ♦ H. Outa et al. Hypernuclear Weak Decay Experiment at KEK: n-n and n-p Coincidence Measurement Proc. Int. Conf. on Hypernuclear and Strange Particle Physics (HYP2003), Jefferson Lab., October 14-18, 2003, Nucl.Phys. A754, 157-167 (2005)  $\diamond$  T. Maruta et al. Proton asymmetry in non-mesonic weak decay of lihgt hypernuclei Proc. Int. Conf. on Hypernuclear and Strange Particle Physics (HYP2003), Jefferson Lab., October

<sup>•</sup> Physics papers published in refereed journal.

Technical papers.

 $<sup>\</sup>star$  PhD theses.

<sup>♦</sup> Conference and Symposium.

<sup>\*</sup> Internal Report and others.

14-18, 2003, Nucl. Phys. A754, 168-172 (2005)  $\diamond$  S. Kameoka et al Measurement of the  $\pi$  decay width of  ${}^{5}_{\Lambda}$ He Proc. Int. Conf. on Hypernuclear and Strange Particle Physics (HYP2003), Jefferson Lab., October 14-18, 2003, Nucl. Phys. A754, 173-177 (2005)  $\diamond$  S. Okada et al.  $\pi^0$  decay branching ratios of  ${}^5_{\Lambda}$ He and  ${}^{12}_{\Lambda}$ C hypernuclei Proc. Int. Conf. on Hypernuclear and Strange Particle Physics (HYP2003), Jefferson Lab., October 14-18, 2003, Nucl.Phys. A754, 178-183 (2005)  $\diamond$  S. Okada et al. Nucleon-nucleon coincidence measurement in the non-mesonic weak decay of  ${}^{5}_{\Lambda}$ He and  ${}^{12}_{\Lambda}$ C The 22nd International Nuclear Physics Conference (INPC2004), Goetheborg, June 27-July 2, 2004, Nucl. Phys. A752, 196-199 (2005)  $\Diamond$  M. Kim et al. Coincidence exclusive measurement of the nonmesonic weak decay of  ${}^{12}{}_{\Lambda}C$ AIP Conf. Proc. 842:528-530, 2006. Also in \*Santa Fe 2005, Particles and nuclei\* 528-53.  $\diamond$  H. Bhang et al. Three-body weak interaction process in the decay of  $\Lambda$  hypernuclei. AIP Conf. Proc. 842:418-420, 2006. Also in \*Santa Fe 2005, Particles and nuclei\* 418-420. 🛇 H. Outa Week decay - experimental results. Conference on the 8th International Conference on Hypernuclear and Strange Particle Physics. Univ. Of Mainz, Oct 10-14(2006)  $\Diamond$  T. Maruta et al. Decay asymmetry in non-mesonic weak decay of light  $\Lambda$  hypernuclei. Conference on the 8th International Conference on Hypernuclear and Strange Particle Physics. Univ. Of Mainz, Oct 10-14(2006)  $\diamond$  H. Bhang et al. The quenching of nucleon yields on the nonmesonic weak decay of  $\Lambda$  hypernuclei and the three-body weak interaction process. Conference on the 8th International Conference on Hypernuclear and Strange Particle Physics. Univ. Of Mainz, Oct 10-14(2006) ♦ H. Tamura Spins in hypernuclear physics Prepared for 17th International Spin Physics Symposium (SPIN06), Kyoto, Japan, 2-7 Oct 2006. Published in AIP Conf.Proc.915 (2007) 70-75.  $\diamond$  H. Bhang et al. Signatures of the Three-body Process in the Weak Decay of  $\Lambda$  hypernuclei. Proc. of the 3rd Asia-Pacific Conference on "Few-Body Problems in Physics" World Scientific Publishing Co., (2007) 332-336  $\diamondsuit$  S. Okada et al. Non-mesonic weak decays of  ${}^{5}_{\Lambda}$ He and  ${}^{12}_{\Lambda}$ C hypernuclei in ( $\pi^{+}$ , K<sup>+</sup>) reactions nternational Symposium on New Facet of Three Nucleon Force - 50 years of Fujita-Miyazawa Three Nucleon Force - (FM50), Tokyo, Japan, October 29-31, 2007, to be published by American Institute of Physics (AIP)  $\diamond$  H. Bhang et al. Three-body Weak Decay Process of Lambda Hypernuclei and its first Experimental Signatures. Proceedings of INPC2007 (to be published). 三宅陽一郎 \* 軽いΛハイパー核の非中間子崩壊における中性子エネルギースペクトル 修士論文, 大阪大学, February 2001 \* S. Okada Exclusive Measurement of Non-Mesonic Weak Decay of  ${}^{5}_{\Lambda}$ He

• Physics papers published in refereed journal.

<sup>•</sup> Technical papers.

 <sup>★</sup> PhD theses.
◊ Conference and Symposium.

Internal Report and others.

Master thesis, Tokyo Institute of Technology, February 2001

- \* S. Kameoka Lifetime Measurement of <sup>5</sup><sub>Λ</sub>He Hypernucleus Master thesis, Tohoku University, February 2002
- \* 丸田朋史
  - 軽いハイパー各における非中間子弱崩壊の研究 修士論文,東京大学, February 2003
- \* J.I. Hwang

The study of  $\pi^{-}$  absorption process with <sup>6</sup>Li and <sup>12</sup>C.

Master Thesis, Ewha Womans University, February. 2003

#### \* H.J. Yim

Measurement of  $\pi^0$  mesonic weak decay branching ratio of  ${}^5_{\Lambda}$ He and  ${}^{12}_{\Lambda}$ C hypernuclei Master Thesis, Seoul National University, February. 2004

- \* H. Outa
  - Experiments on hypernuclear weak decays

Prepared for International School of Physics 'Enrico Fermi': Summer Course on Hadronic Physics, Varenna, Lake Como, Italy, 22 Jun - 2 Jul 2004. Published in \*Varenna 2004, Hadron physics\* 219-258

<sup>•</sup> Physics papers published in refereed journal.

Technical papers.

 $<sup>\</sup>star$  PhD theses.

 $<sup>\</sup>diamond~$  Conference and Symposium.

<sup>\*</sup> Internal Report and others.