

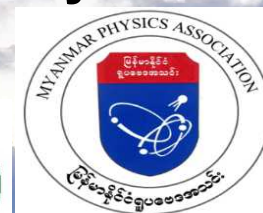
ANPhA2019
June 28-29, 2019
Jeju, Korea

Current Status of Nuclear Physics Research Activities in Myanmar

Khin Swe Myint
University of Mandalay, Myanmar



INTERNATIONAL
SCIENCE
PROGRAMME
ISP



International Conference on Physics, Mandalay 2018

November 25-27, 2018

University of Mandalay, MYANMAR

TOPICS

**Nuclear Physics, Strangeness Nuclear Physics,
Hadron Physics, Environmental Studies,
Material Science, Electronics**

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<http://icpm2018.mutnp.org>

International Conference on Physics, Mandalay 2018 (ICPM2018) ANPhA awards



ICPM2018, ANPhA supported conference held in Mandalay, Myanmar from 24-27, November 2018

Prof. Tanaka, the Chair of ANPhA board, presenting an award to a winner

International Conference on Physics, Mandalay 2018 (ICPM2018) ANPhA awards



**Prof. Tanaka and the ANPhA
award winners**

Titles and winners of ANPhA awards

Investigation of Natural Radioactivity from Small Scale Gold Mining Sites in Pinlebu Township, Sagaing Region (Mr San Win, 2-PhD)

Identification of a Single- Λ Hypernuclear Event in E373 Emulsion Counter Hybrid Experiment (Ms Htar Htar Lwin, 3-PhD)

Theoretical analysis on HADES data with phenomenological KN- $\pi\Sigma$ generalized optical potential (Mr Kyaw Thu Min, 3-PhD)

Λ Single Particle Energy Levels in $^{139}_{\Lambda}La$ (Ms Yamin Htet, MSc student) (MEXT scholarship winner, preparing for further study at Hokkaido University, Japan)

Decay Spectrum of Hypertriton $^3_{\Lambda}H$ (Ms Ei Sandar Maung, 3-PhD)

Fields of Nuclear Physics

- **Strangeness Nuclear Physics (hypernuclear physics and kaonic nuclear physics)**
- **Charge exchange reactions at intermediate energy levels**
- **Heavy ion fusion reaction**
- **Synthesis of super heavy elements using fusion by diffusion model**
- **Nuclear equation of state in neutron star and supernova explosion**
- **r-process nucleosynthesis in neutron star merger and supernova explosion**
(SkyNet code developed by Jonas Lippuner, CalTech)
- **Nuclear radiation detection and Environmental study**

Hypernuclear physics and Kaonic nuclear physics

Structure Study

- **Hypernuclear structure study to investigate the $\Lambda N - \Sigma N$ coupling effect in neutron-rich Λ hypernuclei**
- **$\Lambda\Lambda - \Sigma N$ coupling effect in double Λ hypernuclei is studied to understand the binding mechanism and interactions of strangeness $S = -2$ sector.**
- **Brueckner-Hartree-Fock calculations on spectroscopic study of lambda hypernuclei ${}^7_{\Lambda}\text{Li}$, ${}^9_{\Lambda}\text{Be}$, ${}^{11}_{\Lambda}\text{B}$ and neutron-rich He and Li isotopes.**
- **Three-body ATMS (Amalgamation of Two-body correlations into Multiple Scattering process) calculations on $\Lambda +$ two nuclear clusters and $\Lambda + \Lambda +$ nuclear cluster.**

Structure study on nuclei and Kaonic nuclei

Analysis of a single-lambda hypernucleus event in KEK-PS E373 nuclear emulsion experiment

Nuclear resonance states are studied by complex rotation method

Structure and binding of $\Lambda(1405)$ and few-body kaonic nuclei are also studied to reveal the underlying anti kaon-nucleon interaction

Structure of $\Lambda(1405)$ resonance, a quasi-bound state of anti-kaon and nucleon is a controversial problem of whether it is a single pole or double pole. We are deeply engaged in this problem.

Hypernuclear physics and Kaonic nuclear physics

Reaction Study

Production of hypernuclei is studied for various in-flight reactions by using Green function method to reproduce the experimental spectra.

Theoretical investigation into production of double- Λ hypernuclei from stopped Ξ hyperon on ${}^6\text{Li}$.

Related to kaonic nuclei, we have been doing theoretical analyses on J-PARC E15, E27, E31 and CLAS strangeness photo production

Nuclear radiation detection and Environmental study

radio-active contamination and heavy elements concentration are investigated in various samples from potentially dangerous locations for environmental study by using

Energy Dispersive X-ray Fluorescence (EDXRF)

Atomic Absorption Spectroscopy (AAS)

Solid state nuclear track detector

NaI(Tl) detector

University of Yangon is planning to conduct some activities under the IAEA TC project “Enhancing the National Nuclear Analytical Laboratory”.

Publications

Single-pole nature of the detectable $\Lambda(1405)$.

K.S. Myint, Y. Akaishi, M. Hassavand and T. Yamazaki

PTEP 2018, 073D01

Origin of a maximum of astrophysical S factor in heavy-ion fusion reactions at deep subbarrier energies

K. Hagino, A.B. Balantekin, Nyein Wint Lwin and Ei Shwe Zin Thein

Phys. Rev. C 97, 034623 (2018)

Applicability of the Wong formula for fusion cross sections from light to heavy systems

Nyein Wint Lwin, No No Htike and K. Hagino

Phys. Rev. C 95, 064601 (2017)

High resolution study of $T_z = +1 \rightarrow 0$ Gamow-Teller transition in the $^{26}\text{Mg}(\alpha\text{ }^3\text{He}, t)^{26}\text{Al}$ reaction

**Kalyar Win, Y. Fujita, Yee Yee Oo and others
PRC 96, 064309 (2017)**

Theoretical Investigation into Production of Double- Λ hypernuclei from Stopped X^- hyperon on Li^6 .

**Aye Aye Min, Khin Swe Myint, J. Esmaili and Y. Akaishi
Few-Body Syst. Vol. 54, Issue 1-4, 2013, Springer**

**Double- Λ hypernuclei observed in a hybrid emulsion experiment.
Phys. Rev. C 88, 014003 (2013)**

**J.K. Ahn, H. Akikawa, ..., A.A. Min, Thida Wint, ...K. Nakazawa et al.
Members of E373 Expt. KEK, Japan**

Λ^* -p Structure of K^*p and Theoretical Analysis on recent Data from J-PARC
Wai Mu Mu Phyo, Khin Swe Myint, Yoshinori Akaishi and Toshimitsu Yamazaki, JPS proceedings for HYP 2015.

Transition from Sub-barrier to Deep-sub-barrier Regimes in Heavy-Ion Fusion Reactions

Ei Shwe Zin Thein, Nyein Wint Lwin and K. Hagino
Phys. Rev. C 85 057602 (2012)

Analysis of Heavy Hyperhydrogen ${}_{\Lambda}^6\text{H}$

Theingi, Khin Swe Myint and Y. Akaishi,
Genshikaku Kenkyu Suppl. No. 000 (2012).

Network information

Key researchers and their contacts

Few-body problem and strangeness nuclear physics

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Nuclear radiation detection and environmental study

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Kalyar Thwe, Professor, University of Mandalay dr.kalyar@googlemail.com

Heavy-ion fusion reactions and SHE synthesis

Nyein Wint Lwin, Professor, University of Mandalay, nyeinwinklwin@gmail.com

Nuclear equation of state in neutron star and supernova explosion

Khin Nyan Lin, Associate Professor, University of Mandalay, khinnyanlin@gmail.com

Thank You Very Much!

PROCEEDINGS OF INTERNATIONAL CONFERENCE ON PHYSICS, MANDALAY (ICPM 2018)

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