

# AUDCHARAPON PAGWHAN

Research Assistant

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## Education

- 2019 – 2021 **M.Sc., Astronomy**, *Chiang Mai University*.  
Monte-Carlo Simulation of the Yield Function of Bare Neutron Counters at South Pole  
Advisor: Asst. Prof. Waraporn Nuntiyakul
- 2015 – 2018 : **B.Sc., Physics (Minor in English)**, *Chiang Mai University*.  
Finding the Response Function of Neutron Monitor through FLUKA Simulation: a case study of the Changvan, Advisor: Asst. Prof. Waraporn Nuntiyakul

## Experience

### Mahidol University

- 2022 – Present **Monte Carlo Simulations of South Pole Neutron Monitor Counting Rate since 1964.**  
Finding count rate of the Neutron Monitor at South Pole station by using FLUKA Monte Carlo simulation program to compare with the actual count rate from neutron monitor database.
- 2023 – 2024 **The first Thai woman particle physicist to visit Antarctica.**  
On the Korean Icebreaker ship cruise to Antarctica for Cosmic Rays Research under the "**Changvan Latitude Surveys Project**" from December 27, 2023 to May 5, 2024 and was the first Thai to visit Jang Bogo Station (which belongs to South Korea) at Terra Nova Bay, Antarctica. Join Arctic Research Voyage with Araon Korean Icebreaker operate by Korea Polar research Institute (KOPRI) from July 15 to Oct 1, 2024.
- Advisors : **Asst. Prof. Waraporn Nuntiyakul**, *Department of Physics and Materials Science*, Chiang Mai University  
**Prof. David Ruffolo**, *Department of Physics*, Mahidol University
- National Astronomical Institute of Thailand (NARIT)**
- 2021 – 2022 **Determination of Yield Functions of Neutron Counters at the South Pole from Monte-Carlo Simulation.**
- Advisors : **Asst. Prof. Waraporn Nuntiyakul**, *Department of Physics and Materials Science*, Chiang Mai University  
**Dr. Achara Seripeinlert**, *National Astronomical Institute of Thailand (NARIT)*

## Publications

### Journal Articles

- 2023 B Duangjai, W Nuntiyakul, A Seripienlert, **Pagwhan, A**, K Chaiwongkhot, A Sáiz, D Ruffolo, and P Evenson. Monte carlo simulation and measurement of calibration neutron monitor count rate dependence on proximity to water. In *Journal of Physics: Conference Series*, volume 2653, page 012018. IOP Publishing, 2023.

- 2021 **Pagwhan, A**, A Zingsheim, W Nuntiyakul, A Sáiz, PS Mangeard, D Ruffolo, P Evenson, and J Madsen. Monte-carlo simulation of the response of bare neutron counters at the south pole to vertical secondary particles from cosmic rays. In *Journal of Physics: Conference Series*, volume 1719, page 012008. IOP Publishing, 2021.
- 2021 Y Tangjai, **Pagwhan, A**, W Nuntiyakul, D Ruffolo, JW Bieber, J Clem, PS Mangeard, R Pyle, A Sáiz, IceCube Collaboration, et al. Preliminary analysis of ice cherenkov detector operation during a latitude survey. In *Journal of Physics: Conference Series*, volume 1719, page 012005. IOP Publishing, 2021.
- In Conference Proceedings
- 2023 **Pagwhan, A**, A Seripienlert, W Nuntiyakul, PS Mangeard, P Evenson, J Clem, A Sáiz, D Ruffolo, S Seunarine, R Klinchuen, et al. Monte carlo simulations of south pole neutron monitor counting rate since 1964. volume ICRC2023, page 1319, 2023.
- 2023 A Seripienlert, W Nuntiyakul, S Khamphakdee, PS Mangeard, **Pagwhan, A**, A Sáiz, D Ruffolo, P Evenson, K Fongsamut, P Jiang, et al. Simulations of the yield functions of a semi-leaded neutron monitor from latitude surveys. volume ICRC2023, page 1334, 2023.
- 2023 W Nuntiyakul, E Somboon, A Seripienlert, **Pagwhan, A**, C Asawatangtrakuldee, J Maburee, S Komonjinda, K Kaewkhong, A Laphirattanakul, W Sonsrettee, et al. What is learned from the IceCube virtual reality game a case study with Thai students. volume ICRC2023, page 1624, 2023.
- 2023 St Madlee, D Ruffolo, A Sáiz, P Muangha, **Pagwhan, A**, W Nuntiyakul, A Seripienlert, P-S Mangeard, M L. Duldig, and J Humble. Monte Carlo Simulation of the Neutron Monitor and Position-Dependent Bare Neutron Counter Yield Functions at Mawson Station, Antarctica. volume ICRC2023, page 1323, 2023.
- 2021 **Pagwhan, A**, W Nuntiyakul, A Seripienlert, P Evenson, P-S Mangeard, A Sáiz, D Ruffolo, and S Seunarine. Determination of Yield Functions of Neutron Counters at the South Pole from Monte-Carlo Simulation. volume ICRC2021, page 1246, 2021.
- 2021 W Nuntiyakul, R Pyle, P Evenson, D Ruffolo, J Clem, P-S Mangeard, and **Pagwhan, A**. Characterizing moderated neutron detectors. volume 43, page 911, 2021.

## Fellowships

- 2019 – 2021 **Scholarship Research Student** as a MSc student in The Earth Atmospheric research of National Astronomical Institute of Thailand (NARIT).
- 2019 **University of Wisconsin River-fall grant** to attend a **Summer School during June 18 - August 4, 2019** at University of Wisconsin River-fall in Wisconsin, USA.
- 2019 **University of Wisconsin River-fall grant and NARIT travel grant** to attend a **IceCube boot-camp on June 10-14, 2019** at University of Wisconsin Madison in Wisconsin, USA.
- 2018 **Physics Undergrad Research (PSURE) Summer School Scholarship on June 12 - August 5, 2018** at Mahidol University.

## Academic Achievements & Recognitions

- 2023 – 2024 **Researcher** the Korean Icebreaker ship cruise to Amundsen Sea, Antarctica for Cosmic Rays Research under the **"Changvan Latitude Surveys Project"** from December 27, 2023 to May 5, 2024 and was visit Jang Bogo Station at Terra Nova Bay, Antarctica. Scheduled to join Arctic Voyage from July 15 to Oct 1, 2024.
- 2023 Invited to conduct lab session in **"FLUKA & flair Simulation for beginner"** for 2<sup>nd</sup> **ThaisCube workshop** on August 10, 2023 at STeP, Chiang Mai
- 2023 **Presenter** in the 38<sup>th</sup> **International Cosmic Ray Conference (ICRC2023)** during July 26 - August 3, 2023 at Nagoya University, Nagoya, Japan.

- 2023 **Instructor** International Cosmic Day 2023, Chiang Mai University, November 21, 2023.
- 2023 **Invited Instructor** in Session *"Exploring Universe from the South Pole"*, 3<sup>rd</sup> Thai IceCube VR Experience, Bangkok, August 18-20, 2023.
- 2023 **Invited Instructor** in session *"Neutrino Experiment II: IceCube", VR instruction* in the 5th *Thailand School on High-Energy and Astro-Physics (SHEAP 2023): Neutrino Physics* on July 13, 2023.
- 2023 **Invited Instructor** in session *"Virtual Reality Experience"* The 2<sup>nd</sup> Thai IceCube VR Experience, Bangkok, April 27-28, 2023.
- 2023 **Invited Instructor** in session *"Virtual Reality Experience"* The 1<sup>st</sup> Thai IceCube VR Experience, Bangkok, March 15-16, 2023.
- 2022 **Organized** the ThaisCube workshop on September 6 - 9, 2022 at Flora Creek, Chiang Mai
- 2022 **Presenter** in *Siam Physics Congress (SPC2022)* during June 22 - 24, 2022 at Khao Yai Convention Center (KYCC), Nakhon Ratchasima
- 2021 **Presenter** in online session of the 37<sup>th</sup> *International Cosmic Ray Conference (ICRC2021)* during July 12 - 23, 2021 at Berlin, Germany.

## Technical Skills & Interests

Languages	Thai, English
Programming	Python, C, ROOT
Software	FLUKA, flair, Microsoft Office, LaTeX
Soft Skill	Research, Problem Solving, Communication, Decision-Making
Interesting	Science, Computer Programming, Astrophysics, Environment, Outdoor Activities

## Professional Qualifications & Certifications

- 2023 Certificate of Training: STCW Personal Survival Techniques (A-VI/1-1) at Gentleman Mariners School, date of issue September 12, 2023

## Duty & Responsibility

- Create geometry of detector for simulation
- Perform Monte Carlo simulation of cosmic rays ground-based detectors at various stations (South pole, PSNM, etc)
- Perform Monte Carlo simulation to support Ice Cherenkov data analysis
- Develop and write research papers for journals and for presentation at relevant conferences
- Latitude Surveys Project: Operate Changvan neutron monitor during Antarctic Voyage
- Thai translation, audio and sub-title for IceCube Virtual Reality (VR)
- Workshop organization: Instructor for VR session, calibrating, casting, and broadcasting
- Representative for the group in Research Expo
- Carry out other appropriate duties as determined by the Institute

## References

**Asst. Prof. Waraporn Nuntiyakul**

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Faculty of Science, Chiang Mai University*

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**Dr. Achara Seripeinlert**

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Thailand (NARIT)*

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**Prof. David Ruffolo**

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