PATCHARAPOL WACHIRAPHAN

Center for Astrophysics and Space Astronomy ⋄ 2000 Colorado Ave, Boulder, Colorado, USA, 80309
Tel: (+1) 720-736-9484 ⋄ Email: Patcharapol.Wachiraphan@colorado.edu

EDUCATION

University of Colorado Boulder *2021 - Now*
Ph.D. in Astrophysics **GPA: 3.81**
Department of Astrophysical and Planetary Sciences

Mahidol University, Bangkok, Thailand *2016 - 2020*
Bachelor Degree in Science (Sri-Tang-Tong Scholarship) **GPAX: 3.60 (First Class Honors)**
Department of Physics, Faculty of Science **Distinction Program**

Bunyawat Witthayalai School, Lampang, Thailand *2010 - 2016*
Certificate of Secondary Education **GPAX: 3.74**

RESEARCH EXPERIENCE

Research Assistant (2022-Now)
Center for Astrophysics and Space Astronomy, University of Colorado Boulder
Advisor : Dr. Zach Berta-Thompson
The Thermal Emission Spectrum of the Nearby Rocky Exoplanet LTT 1445A b from JWST MIRI/LRS.

Research Assistant (Summer 2022)
Center for Astrophysics and Space Astronomy, University of Colorado Boulder
Advisor : Dr. Zach Berta-Thompson
The JWST Transiting Exoplanet Community Early Release Science Program.

Undergraduate Thesis (2019-2020)
Department of Physics, Faculty of Science, Mahidol University, Thailand
Project : *The TESS full orbital phase curve and gravity darkening analysis of KELT-9 system*
Advisor : Dr. Petchara Pattarakijwanich
Build a Python-based model to update KELT-9 system's parameters based on TESS photometric data.

Short-term Summer Research (Summer 2019)
Harvard-Smithsonian Center for Astrophysics, Cambridge, MA, US
Advisor : Dr. George Zhou
Learning and practising crucial tools and skills to analyse astrophysical data from TESS spacecraft and its follow-up telescope.

Physics Summer Research Experience (PSURE2018) (Summer 2018)
Mahidol University, Bangkok, Thailand
Project : *Data reduction of exoplanetary transit spectrum*
Advisor : Dr. Petchara Pattarakijwanich

Reduction and analysis for raw stellar spectra obtained from an Echelle spectrograph on the 2.4m Thai National Telescope.

2B-KMUTT Research Camp (2015)
King Mongkut's University of Technology Thonburi (KMUTT), Bangkok, Thailand
Project : *Big data and clustering analysis with Weka software*
Advisor : Dr. Wiboonsak Watthayu
A basic concept of big data and data analysis with Weka software.

TEACHING EXPERIENCE

Lectures
Dept. of Astrophysics & Planetary Sciences, University of Colorado Boulder
Detecting exoplanets and its atmospheres (ASTR2040: Search for life in the Universe; Fall 2024)
Transit method and its implications (ASTR3720: Planets & Their Atmospheres; Spring 2024)

Teaching Assistant
Dept. of Astrophysics & Planetary Sciences, University of Colorado Boulder
ASTR2040: Search for Life in the Universe (Fall 2024, Lecture TA)
ASTR3800: Data Analysis & Computing (Spring 2024, Lecture TA)
ASTR3720: Planets & Their Atmospheres (Spring 2024, Lecture TA)
ASTR1010: Introductory Astronomy I (Spring 2022, Lecture TA and Lab TA; Spring 2025, Lab TA)
ASTR1030: Accelerated Introductory Astronomy I (Fall 2021, Lab TA)

PROFESSIONAL EXPERIENCE

Research Assistant (2020-2021)
School of Information Science and Technology (IST), VISTEC, Thailand
Bio-inspired Robotics and Neural Engineering (BRAIN) Lab

PUBLICATIONS

- *The Thermal Emission Spectrum of the Nearby Rocky Exoplanet LTT 1445A b from JWST MIRI/LRS,* **Wachiraphan, P.** *et al.*, 2025, AJ, 169, 311. doi:10.3847/1538-3881/adc990
- *Identification of carbon dioxide in an exoplanet atmosphere,* JWST Transiting Exoplanet Community Early Release Science Team **(incl. Wachiraphan, P.)**, 2023, Nature, 614, 649.
- *An Extreme-mass Ratio, Short-period Eclipsing Binary Consisting of a B Dwarf Primary and a Pre-main Sequence M Star Companion Discovered by KELT,* Stevens, D. J. *et al.* **(incl. Wachiraphan, P.)**, 2020, MNRAS, 499, 3775.
- *Prescreening MCI and Dementia Using Shank-Mounted IMU During TUG Task,* Cherachapridi, P., **Wachiraphan, P.** et al., 2022, IEEE Sensor Journal, 22, 24550.

- *Sensor-Driven Achieving of Smart Living: A Review,* Leelaarporn, P., **Wachiraphan, P. et al. (equal contribution)**, 2021, IEEE Sensor Journal, 21, 10369.

CONFERENCE PRESENTATIONS

245th AAS meeting + Aspen Center for Physics Conf.
Oral Presentation
Title : *The Thermal Emission Spectrum of the Nearby Rocky Exoplanet LTT 1445A b from JWST MIRI/LRS*

243rd AAS meeting
Oral Presentation
Title : *Tentative Evidence for the Existence of an Atmosphere on the Rocky Exoplanet LTT1445Ab*

Siam Physics Congress (2020)
Oral Presentation, Online
Title : *MRES Reduction Pipeline*

TESS Science Conference I (2019)
Poster presentation, MIT, Cambridge, MA, US
Title : *Spectroscopic follow-up of planet candidates with the Thai National Telescope*

HONORS AND AWARDS

- *Chance Irick Cooke Endowed Fellowship* by Dept. of Astrophysical and Planetary Sciences (Excellence in Graduate Research)
- *Sri-Tang-Tong* Scholarship by Faculty of Science, Mahidol University (Fully-Funded Scholarship)
- *Phet-Tong-Gwaw* Scholarship by Faculty of Science, Chiang Mai University (10,000 THB/Year, Declined)

SKILLS

Programming:	Python, LINUX (Shell Script), Matlab, Mathematica, HTML, C, Access, JAVA Script
Microsoft office:	Word, Excel, Powerpoint, Access, LaTeX
Media:	Vegas Pro
Languages:	Thai (Native), English (IELTS 7.5)

EXTRA-CURRICULAR

Fall 2022 - Summer 2024 :	Vice President of CU Boulder Thai Student Association (TSA)
Fall 2021 - Summer 2022 :	Observatory Committee (CU Boulder, APS)
January 2020 :	Organizer in Insomnia concert (2020)
July 2018 :	Organizer in Science Freshy camp (2018)
June 2018 :	Mahidol Cheerleader in Atom game (2018)
December 2016 :	Teacher in Volunteer Camp