Pakorn Wongwaitayakornkul

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EDUCATION AND TRAINING

University of California, San Diego — Present
Postdoctoral Scholar in Physics — La Jolla, CA

California Institute of Technology — 2014 – 2020
M.S. & Ph.D. in Applied Physics — Pasadena, CA
GPA: 4.1/4.0

William Marsh Rice University — 2010 – 2014
B.S. in Physics — Houston, TX
B.A. in Computational and Applied Mathematics
GPA: 4.11/4.00, *Summa Cum Laude*

PUBLICATIONS

- **P. Wongwaitayakornkul**, H. Li, and P. M. Bellan, *3D Numerical Simulation of Kink-Driven Rayleigh–Taylor Instability Leading to Fast Magnetic Reconnection*, The Astrophysical Journal Letters, 895, L7 (2020)
- B. Seo, **P. Wongwaitayakornkul**, M. A. Haw, R. S. Marshall, H. Li, and P. M. Bellan, *Determination of a Macro- to Micro-scale Progression Leading to a Magnetized Plasma Disruption*, Physics of Plasma 27, 022109 (2020)
- Y. Zhang, **P. Wongwaitayakornkul**, and P. M. Bellan, *Magnetic Rayleigh-Taylor Instability in an Experiment Simulating a Solar Loop*, The Astrophysical Journal Letters 889, L32 (2020)
- **P. Wongwaitayakornkul**, M. A. Haw, H. Li, and P. M. Bellan, *Magnetically Induced Current Piston for Generating Extreme-Ultraviolet Fronts in the Solar Corona*, The Astrophysical Journal 874 (2), 137 (2019)
- M. A. Haw, **P. Wongwaitayakornkul**, H. Li, and P. M. Bellan, *Reverse Current Model for Coronal Mass Ejection Cavity Formation*, The Astrophysical Journal Letters 862 (2), L15 (2018)
- **P. Wongwaitayakornkul**, M. A. Haw, H. Li, S. Li, and P. M. Bellan, *Apex Dips of Experimental Flux Ropes: Helix or Cusp?*, The Astrophysical Journal 848 (2), 89 (2017)

RESEARCH EXPERIENCE

Surko Positron Research Group — La Jolla, CA
Advisor: Clifford M. Surko — Present
- Monitor and maintain cryogenics for superconducting magnets
- Investigate a dynamics of electron vortices subjected to imposed strain flows using Penning–Malmberg trap and vortex-in-cell simulation

Bellan Plasma Group — Pasadena, CA
Advisor: Paul M. Bellan — 2014 – 2020
- Designed an experiment of an arched plasma-filled flux rope with prefill gas to study CME magnetic morphology and its shock-driving mechanism
- Constructed multiple langmuir probes for ion density measurement

- Measured and analyzed experimental data from magnetic probes, Langmuir probes, spectroscopic camera and fast multi-images camera
- Proposed and verified models with numerical simulation and observational satellite data

Summer Undergraduate Research Fellow 2012 & 2013
- Constructed a 3D high-speed magnetic probe for measuring whistler wave
- Imaging plasmas with coded aperture methods instead of conventional optics

Los Alamos National Laboratory Los Alamos, NM
Advisor: Hui Li and Shengtai Li 2016 – Present
- Adapted 3D MHD code (LA-COMPASS) to simulate Caltech plasma arched flux rope experiment
- Examined MHD instabilities and magnetic reconnection using the adapted LA-COMPASS and compared them to the events observed in Caltech plasma laboratory

Texas Children Hospital Houston, TX
Advisor: Craig Rusin and Matthias Heinkenschloss 2013 – 2014
- Developed a software for a noninvasive method to measure cadiac pressure using echocardiogram
- Improved the current preprocessing smoothing scheme of the echocadiogram data

The Killian Reserach Group Houston, TX
Advisor: Thomas Killian 2011 – 2013
- Designed and constructed a tellurium frequency reference system for re-pumping laser during laser-cooling of Strontium (Senior Thesis)
- Aligned and set up diode laser optics for spectroscopy of tellurium at various temperatures
- Wrote a Mathematica program for visualizing magnetic field for a vacuum chamber design
- Constructed a strontium source nozzle
- Designed a strontium beam collimator and mount pieces

HONORS

2009 – 2020	Full Scholarship from *Development and Promotion of Science and Technology Talents Project* to study Physics through Doctoral Degree in USA
2014	Summa Cum Laude from Rice University
2013	Louise J. Walsh Scholarship in Engineering from Rice University
2013	Summer Undergraduate Research Fellowships 2013 from California Institute of Technology
2012	Undergraduate Poster Award for outstanding presentation from American Physics Society-Division of Plasma Physics 54^{th} Annual Meeting, Providence, Rhode Island
2012	Summer Undergraduate Research Fellowships 2012 from California Institute of Technology
2012	Samuel T. Sikes, Jr. Scholarship in Engineering from Rice University
2010	Summa Cum Laude from Worcester Academy
2008	Bronze Medalist as Thai representatives in the 9th Asian Physics Olympiad, Mongolia

TEACHING ASSISTANT

2016 – 2019	APh 156: Plasma Physics
Spring 2013	CAAM 210: Introduction to Computational Engineering
Spring 2012	CAAM 336: Differential Equations in Science and Engineering
Fall 2013	PHYS 101-102: Introductory Physics