Yu-Hsuan Teng

+886988817178 • wendydern1@gmail.com • elthateng.github.io

Education

M. S. in Physics (Expected), *National Taiwan University (NTU),* GPA: 4.18/4.30 Sep. 2017 – Jun. 2019

B. S. in Electrical Engineering, *National Taiwan University (NTU),* GPA: 3.70/4.30 Sep. 2013 – Jun. 2017

- *Astronomy and Physics Related Courses* (GPA: 4.13/4.30):
  Advanced Astronomical Observations, Galaxy Formation and Evolution, General Relativity, Perturbation Theory in Cosmology, General Astronomy, Quantum Mechanics, Classical Electrodynamics, Modern Physics

Research Experience

Properties and Kinematics in Massive Hub-Filament Regions Sep. 2016 – Present

Advisor: Dr. Naomi Hirano (Academia Sinica)

- Conducted hyperfine spectral fitting, filament identification, and LTE/non-LTE analysis to derive the physical conditions in Orion Molecular Cloud 1 (OMC1)
- Analyzed the gas motion inside the filaments and compared the results to filament/core formation models
- Won a **best oral presentation award** in 2018 ASROC Annual Meeting
- Proposed an observation to examine the existence of a spatially extended feature in OMC1 [1]

Interstellar Medium Group Project Aug. 2018 – Present

Advisor: Prof. You-Hua Chu (Academia Sinica)

- Analyzed the hot gas and high-velocity shocked features in the 30 Doradus region with echelle data

Interferometric Imaging with Compressed Sensing and Stockwell Transform Oct. 2017 – May 2018

Advisor: Prof. Jean-Fu Kiang (NTU)

- Developed well-organized code for simulating the instantaneous visibility data observed with SKA
- Proposed a novel reconstruction model associating compressed sensing with Stockwell transform
- Implemented other state-of-the-art algorithms to compare with the proposed methods

ASIAA Summer Student Project Jul. 2016 – Aug. 2016

Advisor: Dr. Naomi Hirano (Academia Sinica)

- Combined interferometer (SMA) and single-dish (CSO) data in visibility and conducted imaging

Gravitational Wave Theories and Simulations Feb. 2016 – Jun. 2017

Advisor: Prof. Jean-Fu Kiang (NTU)

- Studied general relativity, spacetime perturbation theories and gravitational waves
- Implemented Runge-kutta method to solve the light trajectories near a Schwarzschild/Kerr geometry
- Simulated gravitational waveform of a binary black hole merger based on far-field theories

Observing Experience

Submillimeter Array (SMA) Operation Jul. 2017 – Present

- Assist second-shift remote operation from Taipei, Taiwan
- Joined the on-site operation at the summit of Mauna Kea in Hawaii for five nights

Observing Proposals

[1] "Studying the Properties and Kinematics in the Nearest Massive Hub-Filament Region," accepted by the Submillimeter Telescope of the Arizona Radio Observatory

[2] "Star Formation of a Lyman-break Galaxy Candidate at $z = 8.3$", to be submitted to ALMA

Submillimeter Telescope (SMT) Remote Observation Nov. 2018

Kenting Observatory Program, *organized by Prof. Wei-Hsin Sun (NTU)* Jul. 2012 and Jan. 2014

- Operated 14- and 16-inch optical telescopes and conducted data reduction and analysis
- Analyzed HR diagrams of observed star clusters and magnitude variations in observed variable stars

Talks and Presentations

- "Properties and Kinematics in OMC1 with N_2H^+ Observations," *Lunch Talk of Institute of Astronomy and Astrophysics, Academia Sinica* (ASIAA), Sep. 2018.
- "Non-LTE Analysis and Filamentary Structure in OMC1 with N_2H^+ Observations," *ASIAA Star Formation Meeting*, Aug. 2018.
- "Filamentary Structure and Star Formation in OMC1," *Annual Meeting of the Astronomical Society of the Republic of China*, May 2018. **(Best Oral Presentation Award)**
- "Filamentary Structure and Star Formation in OMC1," *Paul's Meeting*, May 2018.
- "Hub-Filament Structure and Star Formation in OMC1," *Final Presentation for ASIAA Summer Student Program*, Aug. 2016.

Training

Student Weekly Seminar: Paul's Meeting, *organized by Dr. Paul Ho (ASIAA)* Sep. 2016 – Present

NCTS Summer School, *National Center for Theoretical Science* Sep. 2018

- Special topics on accretion and emission of accreting black hole

TIARA Summer Schools, *Theoretical Institute for Advanced Research in Astrophysics* Aug. 2016 – Jul. 2018

- Special topics on planet formation (2018), astrostatistics & big data (2017) and radio astronomy (2016)

Teaching Experience

Volunteered Lecturer, *gave lectures on astronomical knowledge to primary school students* Jul. 2015

Volunteered Tutor, *taught Physics to high school students from disadvantaged familes* Sep. – Dec. 2014

Private Tutor, *taught Mathematics and Physics to high school students* Oct. 2013 – Jun. 2014

Skills

Languages

- Mandarin (native)
- English (TOEFL iBT—*Total:112, R:30, L:30, S:23, W:29*; GRE—*V:158, Q:170, AWA:3.5*)

Programming and Scientific Tools

Proficient in Python, MATLAB, Linux shell, MIRIAD, CLASS; familiar with C++, JavaScript, CASA, TOPCAT

Extracurricular Activities

Badminton

Team member, *NTU Varsity Badminton Team and NTUEE Badminton Team* Sep. 2013 – Jun. 2018

2nd place, *Women's Doubles, 2018 Winter National Intercollegiate Physics Badminton Cup* Dec. 2018

3rd place, *Women's Badminton Team Tournament, 2017 National Intercollegiate Athletic Games* May 2017

Pop Dance and Piano

Choreographer and dancer, *NTUEE and NTUHSA activities (12 dances in total)* Mar. 2014 – Apr. 2015

Pianist, *2013 NTUEE Concert and 2017 Winter NTUChorus Vocal Performance* Dec. 2013 and Jan. 2017

For more information, welcome to my page: https://elthateng.github.io