

# Yu-Hsuan “Eltha” Teng

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## Education

<b>University of California San Diego</b> , <i>Ph.D. in Physics, Advisor: Prof. Karin Sandstrom</i>	Sep 2019–present
<b>National Taiwan University</b> , <i>M.S. in Physics</i> <i>Advisors: Dr. Naomi Hirano and Prof. You-Hua Chu</i>	Sep 2017–Jun 2019
<b>National Taiwan University</b> , <i>B.S. in Electrical Engineering</i> <i>Research advisor: Prof. Jean-Fu Kiang</i>	Sep 2013–Jun 2017





## Experience

<b>Department of Physics, UC San Diego</b> , <i>Graduate Student Researcher</i> <i>Advisors: Prof. Karin Sandstrom and Prof. Alison Coil</i>	Jul 2020–present
<b>Department of Physics, UC San Diego</b> , <i>Teaching Assistant</i> <i>Courses: Mechanics, Electromagnetism, Galaxies and Quasars, Cosmology</i>	Sep 2019–Jun 2021
<b>Institute of Astronomy and Astrophysics, Academia Sinica</b> , <i>Research Student</i>	Jul 2016–Jun 2019

## Selected Projects

<b>Molecular Gas in Nearby Galaxy Centers with Multi-line ALMA Observations</b> % ◦ Developed an open source Python pipeline for multi-line radiative transfer modeling and Bayesian likelihood analysis to constrain multiple molecular gas properties in nearby galaxy centers	Jan 2020–present
<b>CPU and GPU Parallelization of Astrophysical Modeling Pipelines</b> % ◦ Developed and implemented a parallelized C++ program for astrophysical modeling using OpenMP and OpenACC ◦ Analyzed the performance and speedup among different implementations and/or sub-procedures	Mar–Jun 2021
<b>AGN Outflows from Low-redshift Quasars</b> ◦ Reduced and analyzed Keck Cosmic Web Imager (KCWI) data of 11 low-redshift active galactic nuclei using IDL	Jun–Dec 2020
<b>Physical Conditions and Gas Kinematics in OMC1</b> % ◦ Used Python and IDL to conduct hyperfine spectral fitting, filament/core identification, and LTE/non-LTE analysis to determine the physical conditions and gas motions in Orion Molecular Cloud 1 (OMC1)	Jul 2016–Jul 2019
<b>Image Reconstruction in Radio Interferometry</b> % ◦ Developed MATLAB codes for simulating the instantaneous visibility data observed by a telescope array ◦ Proposed a novel reconstruction model associating compressed sensing with Stockwell transform	Oct 2017–May 2018
<b>Gravitational Wave Theories and Simulations</b> % ◦ Implemented Runge-Kutta method with MATLAB to solve light trajectories near various black hole geometries ◦ Simulated the gravitational waves from a binary black hole merger based on far-field theories	Feb 2016–Jun 2017

## Selected Publications

- **Yu-Hsuan Teng**, Karin M. Sandstrom, Jiayi Sun, Adam K. Leroy, L. Clifton Johnson, Alberto D. Bolatto *et al.*, “Molecular Gas Properties and CO-to-H<sub>2</sub> Conversion Factors in the Central Kiloparsec of NGC 3351”, 2022, *The Astrophysical Journal (ApJ)*, 925, 72.  
- **Yu-Hsuan Teng** and Naomi Hirano, “Physical Conditions and Kinematics of the Filamentary Structure in Orion Molecular Cloud 1”, 2020, *The Astrophysical Journal (ApJ)*, 893, 63.  

## Honors & Awards

<b>Chair’s Challenge Award</b> , <i>Department of Physics, UC San Diego</i>	Oct 2021
<b>Government Scholarship to Study Abroad</b> , <i>Ministry of Education, Taiwan</i>	Jun 2021–May 2023
<b>Chambliss Astronomy Achievement Award</b> , <i>American Astronomical Society (AAS)</i>	Feb 2021
<b>Chien-Shiung Wu Fellowship</b> , <i>The Physical Society of Taiwan</i>	Feb 2020
<b>Physics Excellence Award</b> , <i>Department of Physics, UC San Diego</i>	Oct 2019–Jun 2020
<b>Dean’s Award</b> , <i>College of Science, National Taiwan University</i>	Jun 2019
<b>Best Oral Presentation Award</b> , <i>Astronomical Society of the Republic of China (ASROC)</i>	May 2018

## Skills

**Programming**—Proficient in Python, MATLAB, LaTeX; familiar with C/C++, IDL, Bash/Csh