

Kuan-Wei Huang

COSMOLOGY · PHYSICS

Dept. of Physics, 5000 Forbes Avenue, Pittsburgh, PA 15213, USA

☎ +1 412-268-3101 | ✉ kuanweih@andrew.cmu.edu | 🏠 kuanweih.github.io | 📱 kuanweih

Education

Carnegie Mellon University

PH.D. IN PHYSICS

- Advisor: Prof. Tiziana Di Matteo

Pittsburgh, USA

Aug. 2016 - PRESENT

National Taiwan University

M.S. IN PHYSICS

- Thesis: Numerically solving the Schrödinger equation in hydrodynamic form
- Supervisor: Prof. Tzihong Chiueh

Taipei, Taiwan

Sept. 2014 - Jul. 2016

National Taiwan University

B.S. IN PHYSICS

Taipei, Taiwan

Sept. 2009 - Jun. 2013

Research Experience

The McWilliams Center for Cosmology

PHD STUDENT. ADVISOR: PROF. TIZIANA DI MATTEO

Pittsburgh, U.S.A

Aug. 2016 - Present

- **Project: Test the influence of different supermassive black hole seeding masses in simulation (in progress)**
- Ran simulations using MP-Gadget (a N-body+hydro solver) to test different seeding masses
- **Project: BlueTides simulation: establishing black hole-galaxy relations at high-redshift [2]**
- Studied the scaling relations between mass of supermassive black hole and galaxy properties in BlueTides simulation

Dept. of Physics, National Taiwan University

MS STUDENT. ADVISOR: PROF. TZIHONG CHIUH

Taipei, Taiwan

Jul. 2012 - Jun. 2013

- **Thesis: Numerically solving Schrödinger equation in hydrodynamic form in expanding universe**
- Numerically solved the flux-conservative initial value problems of quantum wave dark matter (ψ DM)
- **Project: Contrasting galaxy formation from ψ DM with Λ CDM, using Planck and Hubble data [1]**
- Studied the power spectrum, transfer function, halo mass function, and luminosity function of ψ DM and CDM

Dept. of Physics, National Taiwan University

UNDERGRADUATE RESEARCHER. ADVISOR: PROF. JIUN-HUEI PROTY WU

Taipei, Taiwan

Sept. 2011 - Aug. 2013

- Numerically tested the evolution of gravitational waves with different initial conditions in loop quantum cosmology

Dept. of Physics, National Taiwan University

UNDERGRADUATE RESEARCHER. ADVISOR: PROF. YIH-YUH CHEN

Taipei, Taiwan

Sept. 2012 - Feb. 2013

- Researched Percell's three-link swimmer and self-propelled micro-swimmers at low Reynolds number

Publications

[2]

K.-W. Huang, T. Di Matteo, A. K. Bhowmick, Y. Feng, and C.-P. Ma. BlueTides simulation: establishing black hole-galaxy relations at high-redshift. ArXiv e-prints, January 2018.

[1]

H.-Y. Schive, T. Chiueh, T. Broadhurst, and **K.-W. Huang**. Contrasting Galaxy Formation from Quantum Wave Dark Matter, ψ DM, with Λ CDM, using Planck and Hubble Data. ApJ, 818:89, February 2016.

Skills

Programming Python, C/C++, Matlab, Mathematica, LaTeX, IDL
Languages Taiwanese (native), Mandarin (bilingual), English

Workshops & Summer Schools

2015 **Participant**, TIARA summer school on Numerical Astrophysics *Taipei, Taiwan*
2015 **Participant**, Gravity and Beyond summer school & workshop, NCTS *Taipei, Taiwan*
2011 **Participant**, Physics & Mathematics of General Relativity summer school *Taipei, Taiwan*

Honors & Awards

2009 **Best Creativity Award**, Creative experiment designing competition at National Taiwan University *Taipei, Taiwan*
2009 **Top 30 students**, National team selection for the 40th International Physics Olympiad *Taipei, Taiwan*
2009 **Top 30 students**, National team selection for the 10th Asian Physics Olympiad *Taipei, Taiwan*
2008 **Silver medal**, International Mechanics Competition (Theoretical section) *Kaohsiung, Taiwan*
2008 **Bronze medal**, International Mechanics Competition (Experimental section) *Kaohsiung, Taiwan*

Extracurricular Activity

Education Bureau in Taichung City Government

Taichung, Taiwan

ALTERNATIVE MILITARY SERVICE

Aug. 2013 - Aug. 2014

- Designed a plug-in program to speed up archival storage automatically instead of manually
- Archival storage of more than 5000 pieces of financial statements and documents

Male tennis varsity of National Taiwan University

Taipei, Taiwan

MEMBER

2011 - 2013

- Held International Sports Competition for Peking University, Chinese University of Hong Kong, and National Taiwan University
- Round of 16 (Men's double) in National Intercollegiate Tennis Ranking Tournament Orient Cups

High school physics and mathematics tutors

Taipei, Taiwan

TUTORS

2011 - 2013

- 2 students, 3 hours/week/person
- Helped them prepare college entrance examination and get admissions from universities

Tennis Team of Dept. of Physics at National Taiwan University

Taipei, Taiwan

MEMBER & ASSISTANT COACH AT 2012

2009 - 2013

- Reformed the society focusing on software engineering and building network on and off campus.
- Proposed various marketing and network activities to raise awareness.