

# Kuan-Wei Huang

COSMOLOGY · PHYSICS

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## Education

### Carnegie Mellon University

PH.D. IN PHYSICS

Pittsburgh, USA

Aug. 2016 - PRESENT

- Advisor: Prof. Tiziana Di Matteo

### National Taiwan University

M.S. IN PHYSICS

Taipei, Taiwan

Sept. 2014 - Jul. 2016

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

### 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 ( $\psi$ DM)
- **Project: Contrasting galaxy formation from  $\psi$ DM with  $\Lambda$ CDM, using Planck and Hubble data [1]**
- Studied the power spectrum, transfer function, halo mass function, and luminosity function of  $\psi$ 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

## Skills

**Programming** Python, C/C++, Matlab, Mathematica, LaTeX, IDL

**Languages** Taiwanese (native), Mandarin (bilingual), English

## 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,  $\psi$ DM, with  $\Lambda$ CDM, using Planck and Hubble Data. ApJ, 818:89, February 2016.