

Kangning Diao

PHD STUDENT

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Education

Tsinghua University

PHD IN ASTRONOMY

Beijing

Aug. 2020 - present

- Advisor: Prof. Yi Mao
- Research Interest: Reionization, 21 cm line, Astrostats, ML4Astro

Tsinghua University

BS IN PHYSICS

Beijing

Aug. 2016 - June 2020

Awards

2022-2023 **Second Class Outstanding Scholarship (Top 20%)**, Tsinghua University

2022-2023 **Outstanding Teaching Assistant**, Dept. of Physics, Tsinghua University

Publications

PUBLISHED

Diao, Kangning, Yi Mao. 2023. Multi-fidelity Emulator for Cosmological Large Scale 21 cm Lightcone Images: a Few-shot Transfer Learning Approach with GAN. ICML 2023 ML4Astro workshop.

Xiaosheng Zhao, Yuan-Sen Ting, **Diao, Kangning**, Yi Mao. 2023. Can Diffusion Model Conditionally Generate Astrophysical Images? MNRAS, 256, 2.

IN PREP

Diao, Kangning, Zhaoting Chen, Yi Mao, Xuelei Chen, Yidong Xu. Reionization Parameter Inference from 3D Minkowski Functionals of the 21 cm Signals.

Diao, Kangning, Richard D.P. Grumitt, Yi Mao. Modeling Foreground Spatial Variations for 21 cm Gaussian Process Component Separation.

Presentations

August 2023. *Multi-fidelity Emulator for Cosmological Large Scale 21 cm Lightcone Image*. Poster Presentation, ICML 2023 ML4Astro workshop, Hawaii, U.S.

May 2023. *Multi-fidelity Emulator for Cosmological Large Scale 21 cm Lightcone Image*. Contributed talk, HI as a Cosmological Probe, Nazareth, Israel.

Oct 2022. *Reionization Parameter Inference from 3D Minkowski Functionals of the 21 cm Signals*. Contributed talk, Global 21cm Workshop, Berkeley, U.S.

March 2022. *Reionization Parameter Inference from 3D Minkowski Functionals of the 21 cm Signals*. Recorded talk, SAZERAC 21cm 2022, Virtual.

Teaching Experience

- Fall 2022 **Analytical Mechanics**, Teaching Assistant
- Spring 2022 **General Relativity**, Teaching Assistant
- Fall 2021 **Applications of General Relativity**, Teaching Assistant
- Spring 2021 **General Relativity**, Teaching Assistant
- Fall 2020 **General Physics I: Mechanics and Special Relativity**, Teaching Assistant

Service & Outreach

- 2022-2023 **Data Science Club in Dept. of Astronomy**, Co-organizer
- 2020-2021 **Student Taekwondo Association in Tsinghua**, Coach & Organizer