

YU RUIHAN

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EDUCATION

Department of Physics, Tsinghua University, Beijing, China

Aug 2019 - June 2023

Bachelor of Mathematics and Physics.

Shude High School, Chengdu, Sichuan, China

Sep 2016 - Jun 2019

Student of Experimental Accelerated Science Program.

RESEARCH EXPERIENCE

NeRF as Non-Distant Environment Emitter in Physics-based Inverse Rendering

Sep 2023 - Jan 2024

Collaborating with Pr. Zhao Shuang and Ling Jingwang. We use Nerf as ambient light to optimize SDF materials and geometry to achieve better performance.

Calculation and Designing of Cadmium Four Wave Mixing to generate 148.7nm VUV laser for Th229 nucleus transition.

Mar 2023 - Jul 2023

Collaborating with Pr. Ding Shiqian. I almost independently completed calculation of quantum transition strength in cadmium four wave mixing and achieve the same result in mercury four wave mixing. I was aimed at reviving the field of four-wave mixing, which was active decades ago. And I gave plausible scheme and experimental parameters for 148.7nm VUV laser generation.

Designing and Construction of a Quadrupole Mass Spectrometer for the Separation and Purification of Th229 Isotope

Sep 2022 - Jun 2023

Collaborating with Huang Beichen and Pr. Ding Shiqian. We designed and constructed a quadrupole mass spectrometer to purify Th229 for further research.

Developing a ultra-low noise photon detector

Sep 2021 - Sep 2022

Collaborating with Pr. You Li and Dr. Li Xiangliang in the Department of Physics, Tsinghua. We developed a bootstrap photon detector for frequency locking and achieve ultra-low noise.

COMPLETED COURSES

2019 Autumn	Linear Algebra for Physical Sciences , Advanced Calculus I , Fundamentals of Physics I
2020 Spring	Fundamentals of Physics II , Advanced Calculus II , Complex Analysis , Lab.of Physics (1) (A-)
2020 Autumn	Mathematical Physics Equation (A), Fundamentals of Physics III , Lab. of Physics (2) (A-)
2021 Spring	Electrodynamics (A-), Quantum Mechanics I , Electrical Engineering and Applied Electronics (A-), Lab. of Physics (3) (A-)
2021 Summer	Big Data in Experimental Physics(A)
2021 Autumn	Statistical Mechanics I (A-), Experiments in Modern Physics (A+)
2022 Spring	Quantum Optics, Laser and Modern Optics, Astrophysics (A-)
2022 Autumn	Computer Hardware, Analytical Mechanics, Atomic and Molecular Physics, Nonlinear Optics(A-)
2023 Spring	Big Data and Machine Intelligence(A+)

HONORS

Champion of Ghost Hunter 2020 Neutrino data Analysis ranking, Tsinghua University	<i>May 2020</i>
Scholarship for Academic Progress, Tsinghua University	<i>Oct 2021</i>
Scholarship for Social Work Excellence, Tsinghua University	<i>Oct 2021</i>
Scholarship for Academic Excellence, Tsinghua University	<i>Oct 2022</i>
Guangzhou Pharmaceuticals Corporation Scholarship, Tsinghua University	<i>Oct 2022</i>
Tsinghua University Zijing Four-Star Volunteer	<i>Jun 2022</i>

SKILLS

Physics: excel in geometry optics and wave optics, including Fourier optics, Quantum optics and Nonlinear Optics.

Programming: Python, C/C++, CUDA, Mathematica, Matlab

Framework: Pytorch, Mitsuba3, Nerfstudio.....

ACTIVITIES

Social Work of Tsinghua Library Assistant Program	<i>2020 Autumn</i>
Member	
Social Work of Tsinghua Technology Service Program	<i>2021 Spring</i>
Member	
Social Work of Tsinghua Science and Technology Association	<i>Jan 2019 - Now</i>
Technical Group member	

