

# YU RUIHAN

Tsinghua University, Haidian Dist., Beijing, China,  
(+86) 182-2444-0622 | auroraryan0301@gmail.com

## 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

**Shadow Gaussian.**

*Dec 2023- Now*

Collaborating with Ling Jingwang. We plan to substitute Neus in ShadowNeus with 3D Gaussian Splatting to achieve faster reconstruction speed.

**Physically-based method for optimizing SDF using Nerf as light source**

*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

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

## HONORS

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

## ACTIVITIES

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