Bowen Chen

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EDUCATION

Joint Bachelor's Degree Program   Graduated in May 2023

City University of Hong Kong, College of Science, Hong Kong S.A.R., China | September 2018

Bachelor of Science, Applied Physics; GPA: 4.12/4.30

Columbia University, School of General Studies, New York, NY, United States | September 2020

Bachelor of Arts, Physics; GPA: 3.96/4.33 (Magna Cum Laude)

Relevant Coursework: Quantum Mechanics, Statistical Mechanics, Solid State Physics, General Relativity, Astrophysics, Particle Astrophysics, Physical Cosmology, Quantum Field Theory, Scientific Computing

ACADEMIC HONORS & SCHOLARSHIPS

• City University of Hong Kong:

Dean's List (4 semesters), Academic Award of the Department of Physics (2019), CityU Mainland Student Scholarship Scheme (2019-2022), Chow Sang Sang Group Scholarships (2021), Physics Education Fund Scholarship (2021), CityU Scholarship (2021)

• Columbia University:

Dean's List (4 semesters), Distinguished New Student Scholarship (2020), GS Honor Society (2021), William Strong Scholarship (2021), Richard Stockton and Frances Rojack Scholarship (2022)

RESEARCH EXPERIENCE

City University of Hong Kong, Department of Physics

Research Assistant, August 2020– December 2020

Advisors: Qi Liu, Yu Tang (Ph.D. candidate)

Collaborated with Yu on developing the $Mg^{2+}+Gd^{3+}$ co-doping method for the $LiCoO_2$ (LCO) cathode of lithium-ion batteries. Explored the effect of Al/Co coating in dry and wet methods on the cycling performance of LCO batteries. Studied the degradation mechanism of NCMs. I was responsible for the production of cathode material and the assembly of batteries

Columbia University, Department of Astronomy & Astrophysics

Research Assistant, January 2022 – Present

Advisors: Charles Hailey, Gabriel Lewis Bridges (Ph.D. candidate)

Built a model of Saturn's atmosphere using Geant4 to simulate hard X-rays production from non-thermal bremsstrahlung emission, based on Gabriel's work on Jupiter. Built a toy model of Silicon trackers for GAPS (General Antiparticle Spectrometer) to simulate its performance in distinguishing low-energy cosmic-ray anti-nuclei by analyzing the pion multiplicity in annihilation and energy deposition of particles. Collaborating with Gabriel on refining the cascade model of the antiprotonic atom to predict the characteristic X-Ray yields of cascaders for GAPS

Columbia University, Department of Physics

Research Assistant, October 2022 – Present

Advisor: Yuri Levin

Studied the cosmic necklaces model without self-intersection. Working on the numerical solution of motion of cosmic necklaces with self-intersection considered

TEACHING EXPERIENCE

Teaching Assistant, service in Peer Assisted Learning Using Supplemental Instruction (PALSI), gave one tutorial each week to first-year students on general physics courses, Department of Physics, City University of Hong Kong, Fall Semester 2019

MEMBERSHIP

The International Association of Physics Students (IAPS), Individual Member, 2020 – Present

American Physical Society (APS), Member, 2022 – Present

SKILLS AND OTHER ACTIVITIES

Computer Skills:

Proficient in Python, C++, and LabVIEW programming and typesetting using Latex. Familiar with Geant4, Qt, and ROOT. Have experience in operating applications on Linux.

Other Activities:

As the leader of the team "Covalent Bond," participated in PLANCKS2022, a physics competition organized by the youth section of the German Physical Society (jDPG) in Munich, May 2022

Participated in the CUMMW2021 modeling contest and workshops organized by the Department of Mathematics, Columbia University

PUBLICATION

Co-author of *Insight into structural degradation of NCMs under extreme fast charging process*. Submitted to Rare Metals in November 2022, still under review