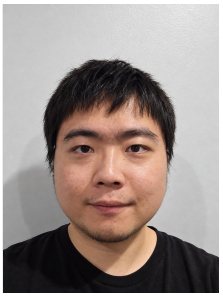
Chengyi Sun



Contact

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Educational History

PhD in Physics, University of Oklahoma 2024–present
Research advisor: Prof. Howard Baer

MSc in Theoretical Physics, King's College London 2022–2023
Distinction

MMathPhys in Mathematics and Physics, University of Warwick 2018–2022
First Class Honours (integrated undergraduate and master's degree)

Research Interests

Theoretical high-energy physics; supersymmetric phenomenology and electroweak naturalness; beyond-the-Standard-Model physics; Peccei–Quinn symmetry, axions and supersymmetric cosmology.

Research Experience

1. **Motility at the Microscale** 2020–2021
   Supervisor: Prof. Gareth Alexander
   Investigated theoretical mechanisms of swimming at microscopic scales, where viscous forces dominate inertia. Examined different modes of microswimmer locomotion through analytical calculations.

2. **Sausage Oscillations in the Solar Corona** 2021–2022
   Supervisors: Prof. Valery Nakariakov and Dr. Dmitrii Kolotkov
   Studied magnetohydrodynamic sausage waves and fast wavetrains guided by non-uniform coronal structures. Used Mathematica for numerical analysis of wave behavior in cylindrical and slab models.

3. **E_{11} in 11D Supergravity and Type IIA/IIB String Theories** 2022–2023
   Supervisor: Dr. Paul Cook
   Investigated the E_{11} Kac–Moody algebra as a possible symmetry framework for eleven-dimensional supergravity. Calculated low-level representations and identified generators relevant to 11D supergravity and the 10D type IIA and IIB string theories.

Teaching Experience

Graduate Teaching Assistant, University of Oklahoma Fall 2024–present
Graded physics problem sets and provided written feedback on students' solutions.

Activities

KCL String Journal Club 2022–2023

London Triangle 2022–2023