Statement of Interests and Goals in Physics

William Homier

I am an undergraduate student in Honours Physics at McGill University with a strong academic background and a deep interest in understanding how fundamental physical principles govern real-world systems. Through my coursework, I have built a solid foundation in mechanics, electromagnetism, quantum physics, and the mathematical methods used throughout physics.

My primary interests lie in experimental and computational studies of matter at small and extreme scales, particularly in condensed matter, nuclear, plasma, and particle physics, with additional interest in cosmology and dark matter. I am especially drawn to projects that combine theory with simulation or laboratory work, where models can be tested and refined using data.

Outside the classroom, I have participated in student engineering design teams including the McGill Drones and Vertical Flight Society and McGill Formula Electric. Through these teams, I gained exposure to collaborative design processes, basic testing, and technical problem-solving in applied engineering settings. Working in these environments helped me become more comfortable with hands-on systems and teamwork.

Through a summer research position, I hope to further develop my research skills, gain experience with advanced experimental and computational techniques, and contribute meaningfully to an active research group. In the long term, I aim to pursue graduate studies in physics and build a career developing new scientific knowledge and technologies through research.

Preferred Summer Research Projects

William Homier

1. THz-driven point projection electron microscopy

Brief paragraph (4–6 sentences) explaining: why you chose it, relevant skills, what you hope to learn.

2. 3D Hydrodynamic Modeling of Relativistic Heavy Ion Collisions of Deformed Nuclei

Brief paragraph explaining fit and motivation.

3. Project Title Here

Brief paragraph explaining fit and motivation.