

Research Summary

My research experience includes decades of ultra-high precision measurements of fundamental interactions in the fields of nuclear physics and gravitation. My current main effort in precision physics is associated with the new $g-2$ experiment at Fermilab, and in particular I am the Deputy Team Leader of the Precision Field Team. At the University of Washington we have upgraded the precision of the existing NMR field measurement system by nearly an order of magnitude. As an Intensity Frontier Fellow I will work with this system to map the field in the re-assembled $g-2$ ring magnet iterating between shimming and re-measuring to achieve the required field homogeneity. This process is expected to take about 6 months and is a major step in achieving increased field precision and consequently achieving the challenging systematic error goal of 70 ppb needed for the experiment.