August 30, 2018 -- Tsega Solomon, a doctoral candidate in Dr. John Orban’s laboratory at the Institute for Bioscience and Biotechnology Research (IBBR), attended the XXVIII International Conference on Magnetic Resonance in Biological Systems, ICMRBS, at the University College Dublin, Dublin, Ireland, on August 19-24, 2018. Founded in 1964, with attendees that have included Nobel Laureates, world class scientists, and leading nuclear magnetic resonance (NMR) research companies, ICMRBS is a biennial NMR conference and one of the major conferences in the field of macromolecular structure characterization using various magnetic resonance
Techniques.

Traditional thought held that each protein has a specific, folded 3D structure that governs its function; however, recent studies have identified metamorphic proteins with the capacity to switch between completely different folds, changing how they behave in the body. Solomon’s poster, entitled “Temperature-Dependent Protein Fold Switching,” presented the results of her experiments utilizing a number of NMR spectroscopy techniques to analyze the structure, dynamics, energetics, and kinetics of the switch mechanism of temperature-dependent protein folding, and demonstrated the role of disordered ends in the ability of the protein to switch conformations.

Dr. Orban shares, “Tsega’s work stems from our long-time collaboration with Dr. Phil Bryan’s lab and has attracted considerable attention from the protein biophysics community. It is likely to have relevance and impact in a number of areas including protein structure prediction, fold evolution, and protein design.”

Solomon’s poster was chosen as one of the best at the event, for which she received a Suraj Manrao Student Science Fund poster award. Ten posters, reflecting proven scientific excellence in the field of magnetic resonance in biology, were selected from over 150 student posters at the meeting, and each winner was awarded $100.

“Attending the ICMRBS meeting was an enriching experience,” says Solomon. “I am grateful to have had the opportunity to share my research, network with a large scientific community, and learn the numerous ways that magnetic resonance is used to study various types of biological systems.”

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