



Edward Blake Miller

Graduate Institution: Columbia University in the City of New York

Graduate Discipline: Chemical Physics

Hometown: Plantation, FL

Relevant SC Research: Basic Energy Sciences

Research Interest:

My research interests are in protein structure prediction and refinement both through homology modeling and ab initio methods. Ultimately, the intent is to reach a level of accuracy suitable to perform rational mutagenesis and ligand docking.

Currently, these interests are manifest in the challenges posed by Rubisco, the plant enzyme responsible for capturing inorganic carbon. This enzyme has a flaw in that it is susceptible to contamination by oxygen. Different species are affected by this contamination to various degrees but whose Rubisco enzyme show only slight differences in sequence in residues periphery to the active site. These differing often are part of small protein segments known as loops. Furthering the methods of loop prediction has been a general goal of my research but specific success in predicting loops with novel sequences in Rubisco and evaluating its effect on carbon capture is specific objective.

About Me:

I'm a graduate student in the Chemical Physics program at Columbia University. For a career, I'm interested in the use of

computational methods for protein and ligand design. Experimental methods are being complemented more and more by now highly accurate computational calculations. I expect the demand for skilled computational chemists to grow substantially in the upcoming decades for academia as well as government and industry and hope to be a part of this growth.

As an undergraduate, I was a Beckman Scholar and a Goldwater Scholar. I graduated Phi Beta Kappa with a B.S. in Chemistry and a B.A. in Physics from the University of Florida.

Recreationally, I enjoy photography, kayaking, and bicycling around New York. As a hobby, I am an amateur radio operator and President of the Columbia University Amateur Radio Club – the oldest college ham radio club.



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