

Tools

Our tools include complementary biophysical, biochemical, and computational techniques such as solid-state NMR, surface plasmon resonance, calorimetry, circular dichroism, and activity assays on live cells and their mimics.

Our major technique to obtain structures and dynamics of macromolecular assemblies is solid-state NMR. It offers unique advantages that uniquely positions it to the studies of biomolecular systems not amenable to other techniques. Recently, solid-state NMR has also been used to study phenomena in living cells, a new methodology which is extracting high resolution information about *in vivo* phenomena.

At the College of William and Mary, state-of-the-art solid-state NMR can be performed on the high field wide bore 750 MHz instrument. This is a rare resource since very few labs worldwide are equipped with such a high field instrument. Thanks to the higher sensitivity provided by the high field, phenomena not observable at lower fields can be investigated.



Our group collaborate with scientists at other institutions and national laboratories, including the National High Magnetic Field Laboratory, the National Institutes of Health, the National Institute of Standards and Technology, and the University of California San Diego.

Applied Science at W&M

The College of William and Mary, which was chartered in 1693 by the King and Queen of England, is the second oldest institution of higher learning in the United States and the oldest modern university. The W&M Department of Applied Science offers interdisciplinary M.S. and Ph.D. degrees that encompass the physical, biological and computational sciences. It is hosted in the new Integrated Science Building that was dedicated in September 2016.



Graduate Program

If you are interested in our research, we encourage you to apply to our PhD program. Features include:

- ✓ Flexible graduate research projects and courses that are tailored to student needs and interests. For BCSB, the curriculum typically includes Math, Physics, Chemistry, and Biology courses.
- ✓ Graduate stipends and full tuition fellowships. Students receive a Research Assistant stipend (\$25,000 for 2016-17), tuition, and health insurance.
- ✓ A historical and scenic campus in Colonial Williamsburg. Other local attractions include Busch Gardens, Virginia Beach, Washington, D.C., the Appalachian mountains, and Shenandoah National Park.

The deadline is the first Friday in February.



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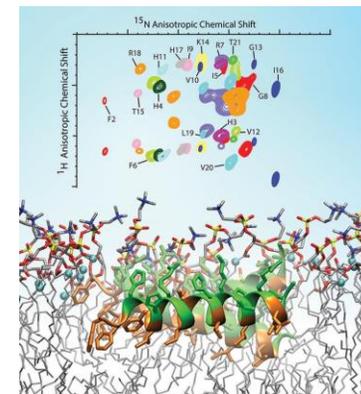


Biophysical Chemistry & NMR Structural Biology

College of William and Mary, Virginia

<http://www.wm.edu/as/appliedscience/>

<http://mcotten.blogs.wm.edu>



Biophysical Chemistry & NMR Structural Biology (BCSB) at W&M is an interdisciplinary laboratory that bridges chemistry, physics, biology, computer modeling and mathematical analysis to investigate the physical properties of biomolecules and determine the relationship between their structure, dynamics, and functions. Students learn how to investigate the physical basis and fundamental principles underlying biological phenomena. This knowledge is crucial to biotechnological applications such as drug discovery, vaccine design, and bioremediation.

