

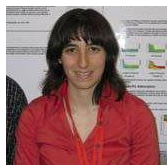


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THE RHODE ISLAND SECTION OF THE AMERICAN CHEMICAL SOCIETY  
"THE FIRST SECTION"

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## Prof. Brenda Rubenstein

Brown University

### *Computing with Molecules*

**Thursday, May 10, 2018**

**University of Rhode Island**

6:00	Light Buffet Dinner	The Richard E. Beupre Center for Chemical and Forensic Sciences 140 Flagg Road Kingston Campus
7:00	Presentation of Award and Lecture	Beupre Room 105

For dinner reservations, please email Louis Kirschenbaum [lkirsch@chm.uri.edu](mailto:lkirsch@chm.uri.edu) by **Friday, May 4 at noon**. Cost: \$10, \$5 for students.

Parking is available in Lot 13 behind the Beupre Center. See <https://web.uri.edu/parking/kingston-campus-parking-map/>

**Dr. Brenda Rubenstein** is currently an Assistant Professor of Chemistry at Brown University. While the focus of her work is on developing new electronic structure methods, she is also deeply engaged in rethinking computing architectures. Prior to arriving at Brown, she was a Lawrence Distinguished Postdoctoral Fellow at Lawrence Livermore National Laboratory. She received her Sc.B.s in Chemical Physics and Applied Mathematics at Brown University, her M.Phil. in Computational Chemistry while a Churchill Scholar at the University of Cambridge, and her Ph.D. in Chemical Physics at Columbia University. She is always interested in working with the larger Rhode Island community to increase access to higher education.

## Computing with Molecules

As transistors near the size of molecules, computer engineers are increasingly finding themselves asking a once completely idle question: *how can we compute using chemistry?* In this talk, I will discuss the growing synergy between chemistry and computation, and introduce you to such alternative forms of computing as DNA and quantum computing, both of which are grounded in basic chemistry. I will then describe some of my Brown Molecular Informatics team's recent work demonstrating how small, unordered molecules in solution can be used to store and compute on vast amounts of data. If time permits, I will additionally touch upon my group's efforts to identify the molecular source of anomalous noise in ion trap quantum computers. All in all, I hope to convince the audience that computing is creating new, unique opportunities for chemistry that chemists would be remiss to ignore.

## The 2018 Benjamin Peterson Award for Excellence in Teaching Secondary School Chemistry

The 2018 Benjamin Peterson Award for Secondary School Chemistry Teaching will be presented at the May ACS meeting.

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2018 Outstanding Chemistry Students from RI Colleges and Universities  
Awards presented at the May RIACS meeting at Providence College