



# 63<sup>rd</sup>

## ANNUAL UNDERGRADUATE RESEARCH SYMPOSIUM

### The Student Activities Committee of the New York Section of the American Chemical Society

**Saturday, May 9<sup>th</sup>, 2015 at Queensborough Community College**

**8:00 am – 3:00 pm (breakfast, luncheon and award reception included)**

Sign up as an attendee at <http://www.newyorkacs.org/meetings/urs/urs.php>

### *Keynote Speaker:* Dr. JaimeLee Rizzo

#### Department of Chemistry and Physical Sciences, Pace University

JaimeLee Iolani Rizzo is a Professor of Chemistry in the Department of Chemistry and Physical Sciences at Pace University, NYC campus. A native of Honolulu, Hawai'i, Dr. Rizzo received her associate's degree from Queensborough Community College followed by a bachelor's and a master's degree in Chemistry from Queens College, CUNY. She completed her graduate studies under the tutelage of Robert Ralph Engel at Queens College, CUNY, where she developed an interest in organic synthesis particularly polyammonium compounds. A series of these compounds were covalently bound to macromolecules where host/guest binding interactions were investigated.

In 2001, Dr. Rizzo joined the faculty at Pace University, where her laboratory co-developed a method to bind polycationic organic compounds to carbohydrate-based surfaces which exhibits antimicrobial activity. This work has led to the acquisition of 14 patents and 5 publications. Johnson & Johnson Wound Management Division and Prismatic Dyeing and Finishing Company have supported this endeavor and are collaborators on some patents.



### *Keynote Address*

#### **Constructing Killer Surfaces**

Our laboratory has been developing an array of new surfaces that kill bacteria and fungi on contact. We have successfully synthesized antimicrobial surfaces that destroy bacteria and fungi where the mode of action is through an electrostatic disruption of the cell wall. The antimicrobial activity of the surface is continual with regard to the agent that is covalently bound to the surface because it is not consumed in the process of invasion and disruption of the cell wall. This makes it unlikely that microorganisms could become resistant to this type of attack as it would involve a major modification of their cell-wall structure. Surfaces which have been prepared include carbohydrate-based materials as in wood, cotton cloth, paper; proteinaceous-based as in wool and silk; chitosan; agarose; gelatin  $\beta$ . The agents that are covalently bound to a given surface are a series of quaternary ammonium salts. The salts are then attached via a simple two-step procedure that involves activation of the surface followed by an  $SN_2$  reaction of the salt with the activated surface. The synthesis, characterization, and bacteriological results will be presented.

#### **SIGNIFICANT DATES FOR 63<sup>rd</sup> URS**

Deadline for Abstract Submission - **March 20, 2015**      Abstract acceptance notification – April 6, 2015

Deadline for Symposium Advanced Registration – April 10, 2015

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| 2015 Co-chair<br><b>Dr. Justyna Widera</b><br>Adelphi University<br>widera@adelphi.edu | 2015 Co-chair<br><b>Dr. Yolanda Small</b><br>York College - CUNY<br>ysmall@york.cuny.edu | 2015 Co-chair<br><b>Dr. Paul Sideris</b><br>Queensborough CC - CUNY<br>psideris@qcc.cuny.edu | 2015 Co-chair<br><b>Dr. Sharon Lall-Ramnarine</b><br>Queensborough CC - CUNY<br>slallramnarine@qcc.cuny.edu |
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FREE Registration for student members of the National ACS, faculty mentors who register in advance and sponsors. For non-ACS members and guests, the registration is \$35 in advance. All on-site registration is \$45 for faculty, staff and guests. Checks for the registration fee should be made out to: "NY ACS URS" and sent to: Prof. Justyna Widera, Adelphi University, Department of Chemistry, Science 201, 1 South Avenue, Garden City, NY 11530.