MEETING Announcement

GEORGIA SECTION

ACS Chemistry for Life™

Thursday, September 17th, 2015

81st Annual Herty Award Celebration
Honoring Dr. David N. Beratan
Duke University
2015 Herty Award Medalist

"Does Evolution Care about Quantum Mechanics? Electrons, Charge Transfer, and Life"

Location: **GT Hotel & Conference Center**
800 Spring St NW
Atlanta, GA 30308
NOTE: 3 hours of parking are included with your attendance. Pre-paid parking tickets will be provided at the end of the award program

Directions: **Click Here**

Thursday, September 17th, 2015

6:00 pm Social and networking (cash bar)
6:30 pm Dinner
7:30 pm Herty award program and seminar

Menu (select one entrée per person):
Appetizer: Mixed garden greens with candied bourbon pecans, dried cranberries, cherry tomatoes, goat cheese, and raspberry vinaigrette
Entrees (choose one per person):
Option 1: Chicken Marseillaise - Sauteed chicken breast, tomato concassee, mushrooms, olives, and Herb de Provence
Option 2: Roasted Salmon - Chervil roasted Atlantic salmon with lemon beurre blanc
Option 3: Forest Mushroom Strudel (vegetarian) - Forest mushroom strudel served with chive beurre blanc
Dessert: Strawberry Romanoff
**Rolls, iced tea, water and coffee are included

RSVP by 5:00 pm on 11 September 2015
at **https://goo.gl/VNXqsB**

Price: $40 regular; $30 retired current ACS members and K-12 teachers, $25 students

Payment: ***At the door***, Cash, credit card, or check to: "Georgia Section ACS"

***Note:** If you make a reservation and then do not attend, you will be charged for the meal as we have to guarantee the number of meals.*

Dr. David Beratan

2015 Herty Award Medalist
R.J. Reynolds Professor of Chemistry
Duke University

Professor David Beratan: The 2015 Charles Holmes Herty Medal was awarded to David Beratan, the R.J. Reynolds Professor of Chemistry at Duke University, where he is also Professor of Biochemistry and of Physics. This award recognized Prof. Beratan for his research establishing predictive structure-function relations of value in biological electron transfer and materials design, and for his substantial service in research mentoring of high school science students and in communicating science to the public.

David's enthusiasm for chemistry was sparked in Doraville and Atlanta, Georgia through transformative experiences at Henderson High School and at Georgia State University. At Henderson, Dr. June Serravezza had created a superb two-year chemistry sequence; at Georgia State University Profs. Don Hicks and Curtis Sears had built an exceptional NSF Summer Science Training Program. David

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received a B.S. in Chemistry from Duke University in 1980 and a Chemistry Ph.D. from the California Institute of Technology in 1985. At Caltech, David became fascinated by electron transfer reactions. Electron transfer takes center stage in chemistry, biology, materials science, and biomedicine, and Caltech had become an international center for excellence in this field. David's independent career began as a staff scientist at NASA's Jet Propulsion Laboratory, following a post-doctoral appointment at the lab. His academic career started at the University of Pittsburgh (1992-2001), and he moved to Duke University in 2001. At Duke, David served as Department Chair, where he oversaw the construction of the interdisciplinary French Family Science Center, the Departmental move into the new facility, and faculty development.

David's laboratory develops and uses theoretical approaches to understand complex molecular phenomena and to assist in molecular design. In biological electron transfer, David's electron tunneling pathway theories have, for decades, guided the design and interpretation of how a protein's fold determines its charge transfer kinetics. In the broader area of molecular design, David developed approaches that have led to the optimization of the optical and electronic properties of organic materials. Recently, David has developed approaches for the inverse design of structures with targeted properties and for the enumeration of property-biased molecular libraries to accelerate the discovery new materials and of pharmaceuticals.

David's service to the profession includes mentoring high school researchers from the ACS Project SEED program. He has also served on NIH, NSF and DOE review and site visit panels, served on the Editorial Advisory Board of Chemical & Engineering News, assisted the Chemical Heritage Foundation with outreach activities, and taught in international summer schools and mini-courses.

"Does Evolution Care about Quantum Mechanics? Electrons, Charge Transfer, and Life"

Abstract: Charge-transfer reactions, processes that move electrons over distances of tenths of nanometers or more, lie at the heart of biological energy processing, biosynthesis, biomedicine, and nanoscience. Interestingly, many of these reactions involve the quantum mechanical tunneling of electrons between donor and acceptor species separated by an "insulating" bridge. Protein evolution and quantum mechanics thus meet face-to-face in these reactions, which are essential for all life on earth. The aim of my presentation is to describe the development of our molecular-level understanding of biological charge transfer reactions. The emerging picture helps us to understand the molecular-scale rules that govern biological charge transfer chains and how to frame the design of bio-inspired structures might be put to practical use. ----------