



## NCAS Annual Meeting Highlight

Volume 3,  
Issue 3

January 2015

*What's going on in  
the North Carolina  
Academy of Science:*

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*Report by: Dr. Allyn C. Howlett, Wake Forest School of Medicine and Chair, Local Arrangements Committee*

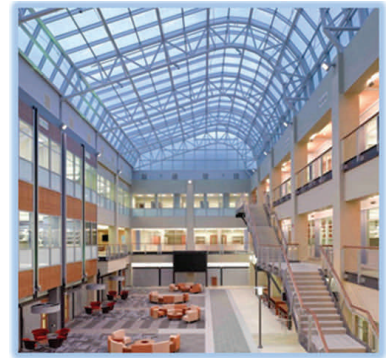
It has been nearly 20 years since the last time the NCAS Annual Meeting was held in Winston-Salem in March, 1996. The upcoming March 27-28, 2015 meeting will convene in the Wake Forest Biotech Place research and conference center, the flagship of the newly developed Innovation Quarter of Winston-Salem.

What has changed between meetings? The year 1994 marked the beginning of the R.J. Reynolds Tobacco Co. complex transformation into what is now known as the Innovation Quarter of Winston-Salem. The initial renovation was the RJR toxicology laboratory building at Chestnut and 1<sup>st</sup> street, which was transformed into the Piedmont Triad Community Research Center. Wake Forest School of Medicine's Department of Physiology and Pharmacology moved into the building to develop a research focus on the addictive diseases, and Winston-Salem State University's Biomedical Research Infrastructure Center faculty established their research laboratories to investigate cardiovascular and neural physiology. Wake Forest Baptist Medical Center, city, county and state government, business and development, and the community have joined forces to renovate the former RJR Tobacco Co. factories into what is now the Innovation Quarter of Winston-Salem, a mixed-use, high-tech community that serves business, academic and societal needs.

The transformation of Winston-Salem's manufacturing past to a future driven by technology and innovation is clearly evident at this year's meeting venue, the 242,000-square-foot Wake Forest Biotech Place research and conference center. Located at Patterson Avenue between 5<sup>th</sup> and 6<sup>th</sup> streets, this \$100 million building is dedicated to the advancement of biomedical science and innovation. Its centerpiece is a four-story-tall, curved glass Atrium where scientists, educators and students can meet to discuss projects under natural light, or watch webinars on a 14-foot video screen. The surrounding conference rooms and auditorium are ideal for classes, journal clubs, and laboratory meetings. The research laboratories can be viewed from the Atrium, creating an environment that combines collaboration and thought with activity and accomplishment.

Wake Forest Biotech Place was redeveloped by Wexford Science & Technology, a private-sector partner of Wake Forest Baptist Medical Center. Biotech Place was given gold designation for being built to Leadership in Energy and Environmental Design (LEED) standards for green building design, construction, operations and maintenance.

The Local Arrangements Committee invites you to join us this year in Winston-Salem. Submit your abstracts, and be prepared to enjoy a very stimulating meeting in March!



*Wake Forest Biotech Place, Photo Credit  
Allyn Howlett*

# NCAS 112th Annual Meeting at Winston-Salem's Wake Forest Biotech Place

Report by: *Dr. Allyn Howlett, Local Arrangements Committee Chair, Wake Forest School of Medicine*



*Photo credits: Local Arrangements Committee Chair, Wake Forest School of Medicine*

The 112<sup>th</sup> meeting of the NC Academy of Science (March 27-28) theme is **Innovation in Research**. The plenary lecture by **Christian Felder** will discuss “**Recent Advances in Drug Discovery: The Importance of Academic-Industrial Partnerships**”. G-Protein Coupled Receptors remain important drug targets as they regulate a broad range of physiological functions. The discovery of unique allosteric binding sites promises the development of more selective and effective drugs. Dr. Christian Felder is a Research Fellow in Neuroscience at Eli Lilly where he leads a drug development group focused on neurological and neuropsychiatric diseases.

He was formerly Head of Cell and Molecular Signaling at the NIMH, investigating molecular mechanisms of neurotransmitter action.

Our keynote address is “**Regenerative Biomaterials for Tissue Reconstruction**” by **Jennifer Elisseeff**, professor of ophthalmology and orthopaedic surgery, and Chemical and Biological Engineering at Johns Hopkins. Dr. Elisseeff directs the Translational Tissue Engineering Center, engaged in engineering technologies to repair lost tissues. She cofounded Cartilix, a startup that translated biomaterials for orthopedic disease, and Aegeria Soft Tissue and Tissue Repair, startups focused on wound healing.



*Plenary Speaker, Dr. Christian Felder*

Special Sessions highlight exciting developments in Forsyth County science and technology. **Pamela Jennings, Director, Center for Design Innovation**, faculty at WSSU and UNC-School of the Arts, will share her vision for the new CDI. **Russ Read, Executive Director, National Center Biotechnology Workforce of BioNetwork**

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and Forsyth Tech will argue for “Biosciences Talent Required”. NCBW, created through a US Department of Labor Grant, is now the operational site for the Community College Consortium for the Biosciences Credentials. **David Carroll, Director, Center for Nanotechnology and Molecular Materials**, and WFU Physics, will describe research and innovation on green/alternative power, biomedical, and materials physics technologies.

Four workshops to select from are:

1. **Turning Science Fiction into Science:** How do we as scientists help authors ‘get it right’ in their science fiction stories? Robert Hampson, Wake Forest School of Medicine, will explore practical ways to interact with authors and influence science in the public eye.
2. **Big Chicken: Poultry, Mapping and Groundwater Impacts:** Attorney

Will Scott, the Yadkin Riverkeeper, will discuss problems and innovative solutions to NC's environmental future.

3. **Harnessing research and entrepreneurship for health and disabilities:** Rapid advancements in computer science, proliferation of mobile sensors, and e-marketing are redefining the user application landscape. Paul Pauca, WFU Computer Science, will explore how these pave the way for innovation in health and disabilities.
4. **Challenges and Opportunities in Commercializing Academic Medical Research:** Old models of commercializing research often succeeded with short-term business plans and investment models. Luke Burnett, KeraNetics, and Daniel Yohannes, Wake Forest Innovations, will address present market challenges for those interested in commercializing academic research.



Keynote Speaker, Dr. Jennifer Elisseff

All in all, this year's meeting promises all the excitement that Innovation in Research has to offer! For more information on the meeting, including hotel information and online registration, please visit <http://www.cvent.com/d/1rq726>.

**Registration opens January 26, 2015.** Register early for lower rates and to meet the **Abstract Deadline of February 27, 2015!** To register, visit: <http://www.cvent.com/d/1rq726>.

# Bryden Grant Call for Proposals

Report by: Dr. Lei Zhang and Dr. Mark McCallum

## Guidelines for Bryden Grants:

1. One \$1,000 grant is in the NCAS 2014-15 budget for research equipment and/or expenses related to attending scientific conferences. Past recipients are not eligible.
2. Both the applicant and the research advisor must be at a college or university in North Carolina and members of the NCAS in good standing (membership forms may be obtained from the address listed below or at web site <http://www.ncacadsci.org>). Please note that this grant program is funded through dues paid by NCAS members. In order to continue this and other valuable NCAS programs, research advisors are encouraged to request their institutions to contribute through an institutional membership.
3. Applications for the grant must include one copy of the following:
  - NCAS proposal cover sheet form with one page budget summary. Itemize as specifically as possible.
  - Extended abstract of research no longer than 2 pages with three sections.
    - I. Introduction: Background, significance and clear statement of purpose.
    - II. Results: Brief summary of experimental results to date.
    - III. Planned Research: Brief description of work planned over the next year.
4. Send applications electronically to:

Dr. Lei Zhang  
Email: [zhangl@wssu.edu](mailto:zhangl@wssu.edu)  
Dr. Mark McCallum  
Email: [mark.mccallum@pfeiffer.edu](mailto:mark.mccallum@pfeiffer.edu)

### **Deadline for applications is February 27, 2015.**

5. Award will be announced March 28, 2015 at the NCAS annual business meeting (Wake Forest University Biotech Center, Winston Salem, NC).
6. Award recipient is strongly encouraged to present his/her work at the NCAS 2016 annual meeting

## Yarbrough Call for Proposals

If you have a student interested in obtaining funding for research, considering applying for the Yarbrough Grant. The applications are due April 15, 2015 and samples of successful applications are on the CASCAS website at <http://www.cancas.org/CANCAS/Yarbrough.html>

## NCAS in the News!

*Report by: Dr. Beth Overman, NC State University*

One of our own is making headlines at UNC Pembroke—**Dr. Maria Santisteban**, along with her collaborator **Dr. Rebecca Bullard Dillard**, has received a 5-year, \$618,993 grant from the National Science Foundation (NSF) for scholarship creation for students in the sciences.

Their program, COMPASS (Creating Opportunities for Students in Science), will provide annual scholarships for 2nd year students in Biology, Chemistry, Environmental Science, and Biochemistry. Students accepted into this pro-

gram will have access to resources designed to support them in their path towards success, including tutoring, mentoring, and career counseling.

Join us in congratulating Dr. Santisteban, Dr. Dillard, and UNC Pembroke for this award!

To read more about the COMPASS program, visit: <http://www.uncp.edu/news/nsf-grant-paves-way-future-scientists>

Do you have exciting news to share to the NCAS Family? Let the publication committee know, and we can highlight your news!  
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The NC Academy of Science would like to thank our Institutional Members:

*Methodist University  
Elon University  
Campbell University  
UNC at Greensboro  
Lenoir-Rhyne University  
UNC at Pembroke  
Warren Wilson College*

We appreciate your support!

## NCAS Annual Meeting: Call for Judges and Moderators

*Report by: Dr. Michele Malotky, CASCAS Director, Guilford College*

We are seeking volunteers to serve as judges for research posters and oral presentations that are being considered for Derieux Awards for Research Excellence during the Annual Meeting of the North Carolina Academy of Science. The meeting will be held at the Wake Forest Biotech Place in Winston Salem, NC on March 27th and 28th, 2014. Qualifying undergraduate posters will be presented and judged during the evening session on Friday, March 27th. Oral papers will be presented and judged on the morning of Saturday, March 28th. A grading rubric for the poster and oral papers will be provided to volunteers prior to the meeting. For more information on the Derieux Award please visit the CASCAS website: <http://www.ncacadsci.org/cascas/Derieux.html>.

We are also in need moderators for each of the oral paper sessions on Saturday. Moderators can be either faculty or students. Please contact Michele Malotky ([mmalotky@guilford.edu](mailto:mmalotky@guilford.edu)) or Beth Overman ([beth\\_overman@ncsu.edu](mailto:beth_overman@ncsu.edu)) if you are willing to serve in either capacity. There will be the opportunity to sign up during the online registration process. Please be sure to include your area of expertise so that we can assign you to an appropriate section.

# Want to Become More Involved with NCAS?

Report by: *Dr. Michael Kingston, Elon University*

There are many opportunities for members to become more involved in advancing the mission of the Academy which include running for elected office, serving in an appointed leadership position, or serving on one of the various committees of the Academy. At the annual meeting at Wake Forest Biotech Place on March 27-28, 2015, the Academy membership will vote to fill the open elected positions, while many non-elected positions are also open. Here is a list of some of the opportunities for leadership positions in NCAS:

## **Elected Positions:**

President-Elect,  
Vice-President  
Elected Director  
Secretary

## **Appointed Positions:**

Graduate Counselor  
Annual Meeting Committee Chair  
Editorial position with the Journal of the North Carolina Academy of Science.

## **Committee Membership Openings:**

Yarbrough Research Grants Committee  
Membership Committee  
Finance Committee  
Education Committee  
Science and Public Policy Committee.

If you are interested in any of these professional service opportunities or if you have questions about them, please contact Immediate Past President Michael Kingston ([kingston@elon.edu](mailto:kingston@elon.edu)).

## **Astronomy Days are Back!**

Every year this is a great event with demonstrations and activities for the entire family! Admissions is free. Find out more information at <http://naturalsciences.org/programs-events/astronomy-days-2>

Location: NC Museum of Natural Sciences  
When: Saturday, Jan 25, 9am-5pm; Sunday, Jan 26, noon-5pm

## Featured Scientist: Sara LaChance

Report by: Dr. Jessica McCann, Duke University

In this issue, we chose to focus on former Guilford college student Sara Lachance and how her research experiences led her to pursue a career in medicine.

Growing up in Rhode Island as one of four kids, it's not immediately obvious how Sara got involved in science and scientific research. Some of the first things she tells me are that she has been playing the flute for almost her entire life and that she loves to travel – she studied abroad in Germany and took a recent trip to Spain. But once the conversation moves to her life in science so far, her passion is evident.

It seems that Sara first caught the science bug in high school. She specifically cites the influence of her 7<sup>th</sup> grade science teacher, Mrs. Antonelli, as starting a “fascination and love for the biological sciences,” Sara said. She was a member of the advanced science club in high school and from there she went to Guilford College to study biology.

While at Guilford, Sara had the opportunity to work at Duke in the lab of Dr. David McClay studying the role of DACH1, or the Dachsund gene, in development. She used sea urchins as her model system and studied the expression of Dachsund throughout different stages of development via *in situ* hybridization – a technique that allows researchers to see where proteins are being expressed in a transparent embryo, like that of the sea urchin. Dachsund has since been discovered to have potential roles in blocking cancer and in the development of diabetes in some populations. During her 2-year stint in the McClay lab, Sara presented her research at several NCAS and CANCAS meetings and the work formed the basis for her undergraduate thesis project. While at Guilford, Sara says that she also relied heavily on her undergraduate advisor Dr. Michele Malotky. “Without her I wouldn't be where I am today, she helped me with my research and made me a better student and scientist.”

Ultimately, Sara has translated her love of science into her study of medicine. “For a while, I debated between research and medicine,” she says. She found the research rewarding, but wanted to work one-on-one with people. “With medicine, everyday is exciting. I love working with patients and seeing directly the benefits and life changes that you can make. Each day is different with new challenges and things to learn.

Sara is planning on becoming an OB/GYN physician. “I originally had never considered ob/gyn before, but I realized that with this field I still get the continuity of care that you would get with family or internal medicine, but you also get the excitement of helping life into the world.”

If there is any free time left in her day, Sara loves to go hiking with her dog, Cali, and still plays the flute. Thanks for sharing a bit of your science inspiration with us, Sara, and we hope to hear more about your progress in the years to come.



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# Job Openings in the Scientific Community

For more information on how to apply, go to <http://www.ncacadsci.org/NCAS/jobOpportunities.html>

## **1. Director of Education, Bernice Pauahi Bishop Museum, Honolulu HI**

The Director of Education is responsible for leadership of the Museum's informal educational program development and implementation aligned with the institution's strategic plan and operational goals.

## **2. Editor, Developmental Cell, Elsevier, Cambridge MA**

Cell Press seeks a new Editor for Developmental Cell.

## **3. Life Sciences Specialists, LEK Consulting, NYC**

LEK Consulting is a global management and strategy consulting firm that uses deep industry expertise and analytical rigor to help clients solve their most critical business problems. Interested applicants should apply by Feb 6 2015.

## **4. Medical Writers, MedErgy, Yardley PA**

MedErgy, a scientifically-focused communications agency, is currently seeking entry level Medical Writers to join our energetic team of professionals.

## **5. Positions with the EPA Environmental Research and Business Support Program**

We are seeking qualified applicants in both business and science, technology, engineering, and math (STEM) fields for our program.

## **6. PreK-8 STEM Educators, Ideaventions, Fairfax VA**

Ideaventions, located near Fairfax, Virginia, is an innovative educational organization focused on PreK-8 STEM enrichment programs to further science and technology education.

## Contact us with your news and ideas!

*The Publications Committee would love to hear from you, so please contact us:*

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<http://www.ncacadsci.org/home.html>

The **objective** of the North Carolina Academy of Science is to *encourage the advancement of science within the state of North Carolina by promotion of scientific research and by the fostering of education in the sciences*". The North Carolina Academy of Science meets these objectives by...

- Publishing a peer reviewed scholarly journal, the *Journal of the North Carolina Academy of Science*.
- Fostering and encouraging student involvement in the sciences through support of the Collegiate (CANCAS) and Student Academies (NCSAS).
- Promoting interactions among scientists and students throughout North Carolina.
- Providing a forum for exchange of ideas for solving issues important to North Carolina.

The Academy members include individuals from academia, industry, government, and all others who support the objectives and goals of the Academy.

## North Carolina Academy of Science

### Our Mission

The North Carolina Academy of Science promotes public appreciation of science, science education, scientific research and a meaningful role for science in public policy.

### Our Goals:

#### Promote public appreciation of science

- Partnership with Science Centers
- Public Lecture Series
- Newsletter

#### Promote science education

- NCAS Webpage
- Academic Lecture Series
- NCAS Publications: Journal, Educational Publications
- Student Academy - Middle & High School

#### Promote scientific research

- Yarbrough and Bryden Research Grants
- CANCAS Undergraduate Research Workshop
- Presentation Opportunities at Annual Meetings

- Journal of the North Carolina Academy of Science

#### Promote science in public policy

- Symposia
- News Releases
- Position Statements
- Interactions with Public Officials

