



Volume 10,  
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*What's going on in  
the North Carolina  
Academy of Science:*

- New NCAS Board Members
- AJAS Award Winner
- CANCAS News

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*And much more...*

## Letter from our President

*By Lei Zhang, Winston Salem State University*

Dear fellow members and supporters of the North Carolina Academy of Science,

I hope that you are having a productive year and making progress on all your goals. It's my pleasure and honor to continue serving as President of the North Carolina Academy of Science (NCAS) for the 2021-2022 year. I am very grateful to have the past year working with you and look forward to our continued journey together over the next year.



Dr. Lei Zhang

The Academy's mission is **"to promote public appreciation of science, science education, scientific research and a meaningful role for science in public policy."** The Academy has three components: the *Senior Academy*, *Collegiate Academy* (CANCAS) and *Student Academy* (officially North Carolina Student Academy of Science, NCSAS). To fulfill the mission, the Academy publishes peer-reviewed articles in all disciplines of science quarterly through *Journal of North Carolina Academy of Science*, publishes Newsletters, hosts NCAS annual meetings where the researchers (especially undergraduate researchers) can present and share their new scientific discoveries with others, and hosts annual undergraduate research workshops. In addition, the Academy participates, supports, and advocates other scientific events.

Today, the world is still facing the ongoing global common *coronavirus health crisis*, which gives us a dynamic, uncertain, and complex policy environment globally. The collective global experience of the pandemic is providing an unprecedented opportunity to re-examine the relationship between science, policy, and wider society/community. Science and the role for science in public policy have taken center stage during this *health crisis* and have never been more important today in everyone's daily life. As part of the mission, the Academy provides an opportunity/channel to raise your voice to influence public science policy.

The NCAS 118th annual meeting is scheduled in next March at Campbell University and is currently expected to be in person with an additional virtual session for those who will be unable to physically attend the meeting. Different from the past NCAS annual meetings, this coming annual meeting will introduce for the first time one brand-new component – an engineering session to expand NCAS annual meeting's scope. NCAS needs your help to share the meeting information with your colleagues and students, especially with those who are in engineering areas, and invite them to attend the meeting. I anticipate that, under your participation and support, the coming annual meeting will be an exciting and interesting event.

I would like to use this opportunity to encourage you to check out the NCAS official website – <http://www.ncacadsci.org>. Please do not hesitate to contact us if you have any questions or/and any suggestions.

Stay safe and healthy! I look forward to meeting you all at the coming annual meeting in March 2022.

Best regards,

Lei Zhang, Ph.D.  
President 2021-2022  
Professor of Physics  
Winston Salem State University  
[zhangl@wssu.edu](mailto:zhangl@wssu.edu)

# NCAS High School Student, Lisa Zhang, Wins Prestigious AJAS Award

*Report By Dr. Karen Guzman, Publications Committee*

Each year, the American Junior Academy of Science (AJAS) selects one high school student to remember the contributions of former AJAS Director, Dallas Cocke. Dallas Cocke dedicated her life to teaching science and to the mission of AJAS, and the Virginia Junior Academy of Science, because she understood the profound difference our efforts can make in the lives of young scientists. The Cocke, Decker, Takahashi, McCoy & Brogie Memorial Award acknowledges her contributions, as well as those of the AJAS directors that followed her. Dallas Cocke's successors (and their academy) are Dean Decker (Virginia); Gloria Takahashi (Southern California); Joan McCoy, (Mississippi), and current AJAS director, Lee Ann Brogie of (Nebraska).

The award is sponsored by funds donated in her memory to recognize an AJAS Fellow who exemplifies the enthusiasm and dedication of the AJAS Directors. Applicants address the statement: "What the AJAS experience meant to me." and award recipients receive a cash prize of up to \$100. Congratulations to the 2021 winner of the award, Lisa Zhang of the Student Academy of the NC Academy

of Science (NCSAS), who attends Providence High School in Charlotte, NC. What follows is a reprint of her winning essay.

"When I was in elementary school, I used to hide under the covers when I couldn't fall asleep and read by the light of a finger flashlight that I got from the token machine at the dentist's office. Eventually, I upgraded to a small and considerably brighter flashlight, but the batteries in it made its metal casing burn up in my hand after only a few minutes. I knew there had to be a light source out there that balanced performance and practicality. This began a search for the optimal bedtime reading illumination and, simultaneously, my journey into the realm of scientific research.

Years later as a high school freshman, I began to look for an opportunity to expand my research skills in a more professional setting. I joined a research group with a professor at the nearby University of North Carolina at Charlotte and began to shadow a then-Ph.D. candidate, who brought me along in the process of synthesizing new materials for applications in the optimization of organic light

emitting-diodes. Up to this day, I have been working in this area of study, using new materials to improve solid-state lighting technologies including OLEDs, LEDs, and OPVs.

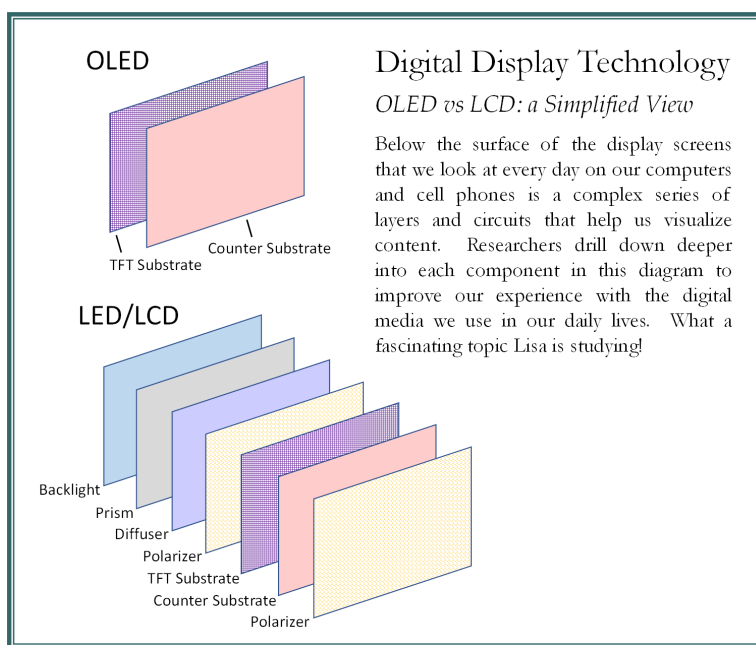
From the kid reading by flashlight to the student researcher that I am today, my experience working in the lab has unquestionably changed how I navigate and investigate the world. Being able to attend the AAAS Annual Meeting as an AJAS delegate this year has been the greatest honor and an extremely cherished opportunity for me. Every Q&A, keynote session, and plenary lecture has provided transformative knowledge that I can apply to all disciplines in life. A particularly memorable lesson was from Mr. Randy Olson, who introduced the ABT framework of storytelling. In school, I find myself seeking out and recognizing the ABTs that exist within sources for research papers, books that I read in English, and summaries of findings in my AP Psychology class. The blueprint of ands, buts, and therefore finds its way into presentations and stories that I share with my friends. The efficacy of this template is undoubtedly clear in my mind, as I still remember the story of the penguin that Mr. Olson initially narrated with it. Another unforgettable session was

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Dr. Francis Collins' presentation. I was intrigued by the concept he introduced of the Innovation Funnel used by RADx in their vaccine initiative. I found it astonishing that the funnel for the project started with 3000 ideas; it opened my eyes to the true range of possibilities that innovation offers.

The Research Round Table was a highlight for me in a few ways. First, I found that presenting my research to a group of peers is much different than presenting to a panel of judges. The session flowed very smoothly and conversationally, and I gained insight into a variety of topic areas, some of which I had very limited prior knowledge in. One project that left a lasting impression on me was about detecting e-cigarette smoke in schools because it is an issue that is very relevant in my own school. I am also extremely thankful for the RRT leadership opportunity, which I took advantage of. As an emcee, I was able to develop my skills in facilitating group discussion and time management, two skills that will be relevant in any of my future endeavors. Despite not being able to attend the Meet the Scientist session due to a conflict with a school exam, I feel that I was able to make the most of the resources and events provided by AJAS. While AJAS was definitely a significant step in my research, I know that it is not an ending point or an

upper boundary. As a junior now, I am using the molecules that I synthesized earlier in a different application: creating rare-earth-free white light LED phosphors that do not have the adverse environmental impacts that current commercial ones have. As Dr. Collins emphasized in his session, I will continue to keep my horizons wide to welcome new ideas that come about and check out the new doors that open. I am excited to see where the future will take me in my pursuit of scientific research.”



North Carolina Academy of Science is on Instagram! Follow us @ncacademyofscience.

Please consider tagging us in photos of you doing science! If tagged, these pictures will be posted on our page with a shout out to the NCAS or CAN-CAS members in them. The local arrangements committee would also like to feature YOUR work as we prepare materials for this year's annual meeting.

# CANCAS News & Officers 2021

*CANCAS Co-Directors: Dr. Laura Reichenberg & Dr. Carly York*



Emma Throneburg  
President  
Lenoir-Rhyne University



Alicia Sigmon  
Vice President  
Lenoir-Rhyne University



Maggie Carter  
Secretary  
Lenoir-Rhyne University



Gabriel Corn  
Historian  
Lenoir-Rhyne University

## Join us for the Collegiate Academy of the North Carolina Academy of Science Since 1902 Annual Workshop

The Undergraduate Research Workshop of the Collegiate Academy of the NC Academy of Science (CANCAS) will be held on January 22<sup>nd</sup>, 2022 hosted by Pfeiffer University. This is a great event to promote networking and ask questions to a panel of representatives from various graduate and professional programs (Ph.D., P.A., D.O, etc.). Following lunch, students will attend breakout sessions on test preparation, resume development, building a professional social media presence, reading, and presenting in science, and how to communicate effectively through scientific oral and poster presentations.

### **CANCAS Group Members: Time to renew your Group membership!**

Be the first to renew your membership for the 2021-2022 academic year! Group membership in CANCAS is a great deal, and is the only group rate we offer, so take advantage of the savings. To renew, visit our [Joinit membership page](#).

Contact one of the CANCAS Co-Directors, Laura Reichenberg (laura.reichenberg@pfeiffer.edu) or Carly York (carly.york@lr.edu), if you have questions or need more information.

### **Institutions with Group Membership Last Year:**

Catawba College  
Lenoir-Rhyne University  
Pfeiffer University  
Fayetteville State University  
Guilford College  
UNC Pembroke  
*Time to renew!*



# NCAS Relaunches Institutional Sponsorships

## *NCAS Finance Committee*

In 2005, the North Carolina Academy of Science was sponsored by two companies that were Sustaining Members, 26 colleges and universities that were Institutional Members and 4 organizations that were Associate Members. These contributors were listed on the back cover of the print version of the Journal of the North Carolina Academy of Science. Since that time, the journal has gone on-line and these membership categories waned. The Board of Directors has decided to once again offer companies, col-

leges, universities and organizations the opportunity to demonstrate their support for science education, scientific research and a meaningful role for science in public policy within the state of North Carolina by becoming NCAS Institutional Sponsors. The annual fee to become an Institutional Sponsor will be \$300 per year. Institutional sponsors will be proudly listed on the NCAS website which will host active links to their home webpages. Institutional sponsors will also be listed in the annual meeting program along with the sponsors of

the annual meeting. Our annual meeting draws presentations and participation from more than 25 academic institutions across the state. The NCAS Board of Directors invites all members to encourage their companies, colleges, universities, and professional organizations to become Institutional Sponsors. Please contact the NCAS Treasurer, Dr. Evan Reynolds at [ereynolds@campbell.edu](mailto:ereynolds@campbell.edu) to start an Institutional Sponsorship.

## Welcoming New Board Members



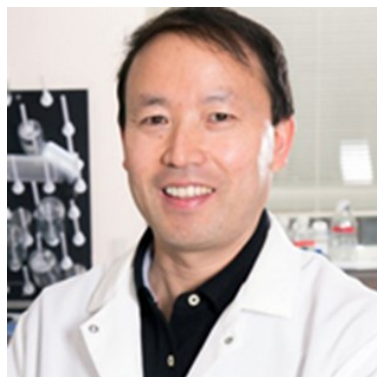
*Dr. Carly York,  
Lenoir Rhyne University  
Co-Director of CANSAS*



*Dr. Mesia Steed, Winston  
Salem State University  
Science & Public Policy  
Committee Chair*



*Dr. Judy Moore,  
Lenoir Rhyne University  
Strategic Planning Committee  
Chair*



*Dr. Zhenquan Jia, UNC Greensboro  
Graduate Counselor*



*Dr. Chris Thomas,  
NC School of Science and Math  
Director of NCSAS*

# Annual Meeting 2022–Campbell University

*From Dr. Jordan Womack, Local Arrangements Chair, Campbell University*

Are you new to the Academy?

The North Carolina Academy of Science encompasses all areas of science and welcomes all those interested in science and its advancement. For the Annual Meeting, which is a joint meeting of the Senior and Collegiate branches of the Academy, we welcome submissions for oral and poster presentations from professionals, graduate students, and undergraduate students. As usual we will have a dynamic keynote presentation, and this year, we also are planning a greater variety of discipline-specific presentation sessions and stimulating panel discussions that will cover many areas of interest. Please plan on attending the meeting or becoming a member if you have not already.

## 2022 NCAS Annual Meeting



March 18-19, 2022 | Buies Creek, NC

Hosted by Campbell University

## Bryden Grants: Call for Proposals

*From Dr. Helen Caldwell, Bryden Grants Committee Chair, Lenoir-Rhyne University*

Apply for the 2021-2022 Bryden Graduate Research Award to receive a \$1,000 grant for research equipment and/or expenses related to attending scientific conferences. The **deadline** for applications is **March 1, 2022**. The award will be announced by **March 31, 2022** at the NCAS annual business meeting. For more information, see the NCAS News on our website (<https://www.ncacadsci.org/ncas-news>) or contact Dr. Helen Caldwell at [briggs@lr.edu](mailto:briggs@lr.edu).





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“Like” us on Facebook and follow us on Twitter (@NCAcadofSci) to get the latest updates and information on what’s happening at your North Carolina Academy of Science!



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

