

# Research Updates + Lessons on Science Communication and Outreach from APS March Meeting 2022

By Vianney Gimenez-Pinto, PhD

The American Physical Society held his first hybrid March Meeting in Chicago, Illinois from Monday, March 14 to Friday, March 18, 2022. Including online and in-person attendees, this massive meeting allowed more than 12000 physicists, engineers and researchers from around the globe to present their research findings, engage in relevant scientific discussions, and address current challenges for the physics community and the advancement of science.

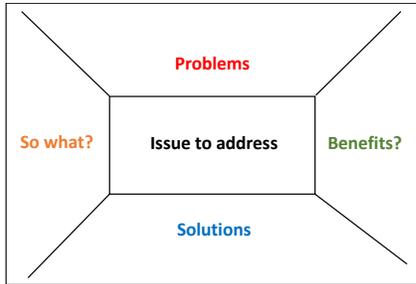
On Monday, March 14, I had the opportunity to present the contributed talk **B21.00014 “Light-driven liquid crystal elastomer kirigami: fluttering with splay and topology”**, part of session **B21 Morphing Matter: From Soft Robotics to 4D Printing II**. In this 12-minute talk, I presented simulation studies on thin liquid crystal elastomers (LCE) with a macroscopic sample geometry given by custom-made cuts in the spirit of kirigami – the Japanese art of cutting paper. In addition, these elastomer samples have liquid crystal director microstructures that combine: in-plane patterns with + 1 topological charge, and splay across the sample thickness. Among the presented results, we demonstrated the bio-mimetic actuation of a fluttering butterfly. *This research project is currently taking place at Lincoln University of Missouri, in collaboration with experimental colleagues Juan Chen, Jinghua Jiang and Chenhui Peng at the University of Memphis, who are synthesizing these LCE kirigami samples.* Abstract can be found in the Bulletin of the American Physical Society [[1](#)].

Colleague Juan Chen, senior graduate student at Memphis and experimental soft matter researcher, also presented the contributed 12-minute talk **Y17.00003 : Programmable Shape Morphing of Liquid Crystal Elastomer**, covering a variety of experimental results. The abstract of her talk can be found also in the Bulletin of the American Physical Society [[2](#)].

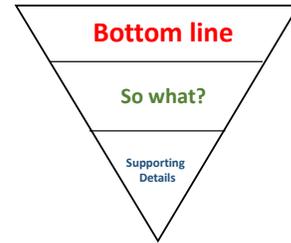
Beyond presenting our most recent research results, I also attended scientific sessions with presentations on *Liquid Crystals, Extreme Mechanics, Mechanical Metamaterials, Active Matter and Liquid Crystals in Biological and Bio-Inspired Systems, Science Communication, Physics Education, and Diversity and Inclusion*.

I particularly enjoyed session **F13: Communicating Science**, where I learned several helpful tools to prepare and convey science for the general public. These include the message

boxes - a tool to organize our message tailored to specific audiences, the inverted pyramid for outlining material in a presentation, and the use of twitter-style posters.



**Left:** Schematics of the message box for science communication



**Right:** Inverted pyramid for organizing science content directed to a general audience

These tools for communicating science are particularly valuable for outreach efforts. However, considering Lincoln is an open-enrollment (non-selective) institution, they can also be used to teach scientific concepts to our students in general education and introductory science courses. Thus, I am looking forward to apply these communication techniques in my classroom while teaching 100's and 200's courses, evaluate concept mastery and corresponding student performance.

**Right:** Content organization and different sections of a Twitter poster

As a poster session attendee, I will be driven to check out a poster following this structure.

<p><b>Poster Details Section</b></p> <p>Taylor poster to audience</p> <p>Include the "So what?"</p> <p>Explain methods to a high level</p>	<p><b>Twitter-style sentence with Main Idea</b></p> <p>Take-away message</p>
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Another interesting session in the APS March Meeting was **K15 Dr. Willie Hobbs Moore: Celebrating 50 years of African-American Women PhDs in Physics**. While all lectures in the session were rich in content and value, I must note the talk by Gerceida Jones, a Physicist and

Professor at New York University. As part of her work, she leads an active outreach program for K-12 students and her local community: “St. Albans under the Stars: Connecting the universe to the Community”. In her talk, she provided the following scaffold to plan a purposeful and successful outreach effort that connects STEM fields to the community:

- 1) Exposing issues and problems
- 2) Recognizing that issues play an integral part of lives in the community
- 3) Proceed with active steps to apply these issues to educational, career and civic engagement choices in STEM

Beyond this scaffold, she also provided valuable reference materials and bibliography for Planning, Developing and Conducting Metrics and Evaluation (M&E) of an outreach program. The recording of her talk and the complete K15 session honoring Dr. Willie Hobbs Moore is available to the public (registration is not required) at <https://march.aps.org/events/willie-hobbs-session> [3].

In brief, the 2022 APS March Meeting in Chicago IL, was an enriching professional development experience allowing the dissemination of scientific results and the cultivation of vital skills for an academic. As a minority-serving institution, it is of vital importance to facilitate these professional developing opportunities to faculty members so they can perform their duties as educators and academics to the highest standards of excellence. The benefits from the professional development of our faculty members materialize on the service we provide to our students and our community.

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*Vianney Gimenez-Pinto, PhD is a Soft Matter Scientist and an Assistant Professor of Physics and Chemistry at Lincoln University of Missouri. She is interested in science in our everyday lives and reducing disparities for minorities in STEM.*

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## References

- [1] <https://meetings.aps.org/Meeting/MAR22/Session/B21.14>
- [2] <https://meetings.aps.org/Meeting/MAR22/Session/Y17.3>
- [3] <https://march.aps.org/events/willie-hobbs-session>