

# THE PURDUE LECTURE HALL SERIES

Thursday, January 23rd, 2020 @ 7pm

Purdue University, MATH 175

105 N University Street, West Lafayette, IN 47907

**Topic:** Old phage new tricks: structural analysis of phage G's infection mechanism  
**Guest Speaker:** Brenda Gonzalez, PhD candidate, College of Science

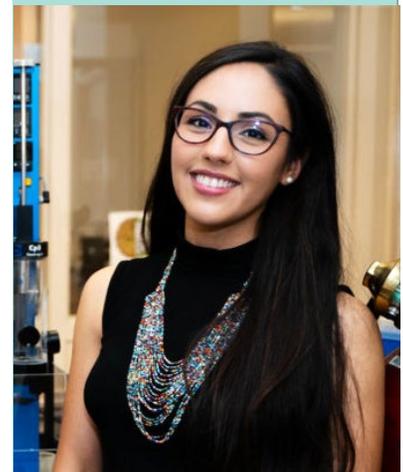
Cryo-EM is a revolutionary tool in structural biology used to study important biological targets. The 2017 Nobel Prize in Medicinal Chemistry was awarded to scientists for the development of this method for its extremely promising utility in drug discovery and science in general.

In the lab, I use cryo-EM to study the complex structure of bacteriophage, viruses that infect bacteria. With cryo-EM, I have been able to obtain the highest detailed depiction of the largest bacteriophage discovered to date – phage G. Phage G was first reported in 1968 by scientists in Italy.

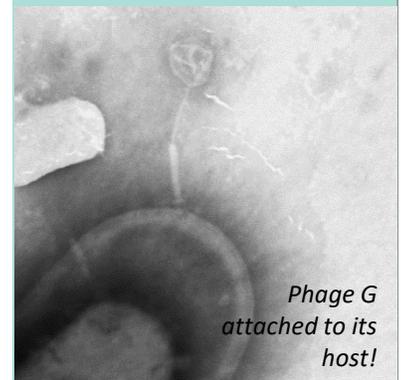
I have been able to obtain pure phage G and image it using cryo-EM. My results so far suggest there is more novelty to phage G than just its size. Phage G's infection mechanism is the first reported of its kind and could be a potential evolutionary link within the tailed phage order of Caudovirales.

The information I have uncovered about its structure can be used to help develop drug delivery vehicles for genetic diseases, and its host makes it an appealing target for applications such as bioremediation for environmental detoxification efforts and antibiotic treatments.

**Background:** Brenda is currently a PhD Candidate in the fourth year of her PhD in the Department of Biological Sciences at Purdue in the Jiang Lab. She is originally from Lafayette, IN where she went to Jefferson High School and continued onto study at Purdue earning her Bachelor's in Science in Biochemistry. She worked in the Engelhardt Lab at the University of Iowa as a Researcher studying the lung disease as it relates to Cystic Fibrosis. In August 2016 she matriculated into the Biological Sciences PhD program at Purdue.



Brenda Gonzalez,  
PhD Candidate



*Phage G  
attached to its  
host!*

