

# Welcome to the Research Mentorship & Internship Meeting

Mr. Jaak Raudsepp  
Research Teacher  
[jraudsepp@csh.k12.ny.us](mailto:jraudsepp@csh.k12.ny.us)

Ms. Kerin Moser  
Director of Humanities  
[kmoser@csh.k12.ny.us](mailto:kmoser@csh.k12.ny.us)

Dr. Christine Schlendorf  
Director of STEM  
[cschlendorf@csh.k12.ny.us](mailto:cschlendorf@csh.k12.ny.us)



# Agenda

1. Why should I enroll in research?
2. Research opportunities at CSH High School
3. Outside Research opportunities and internships

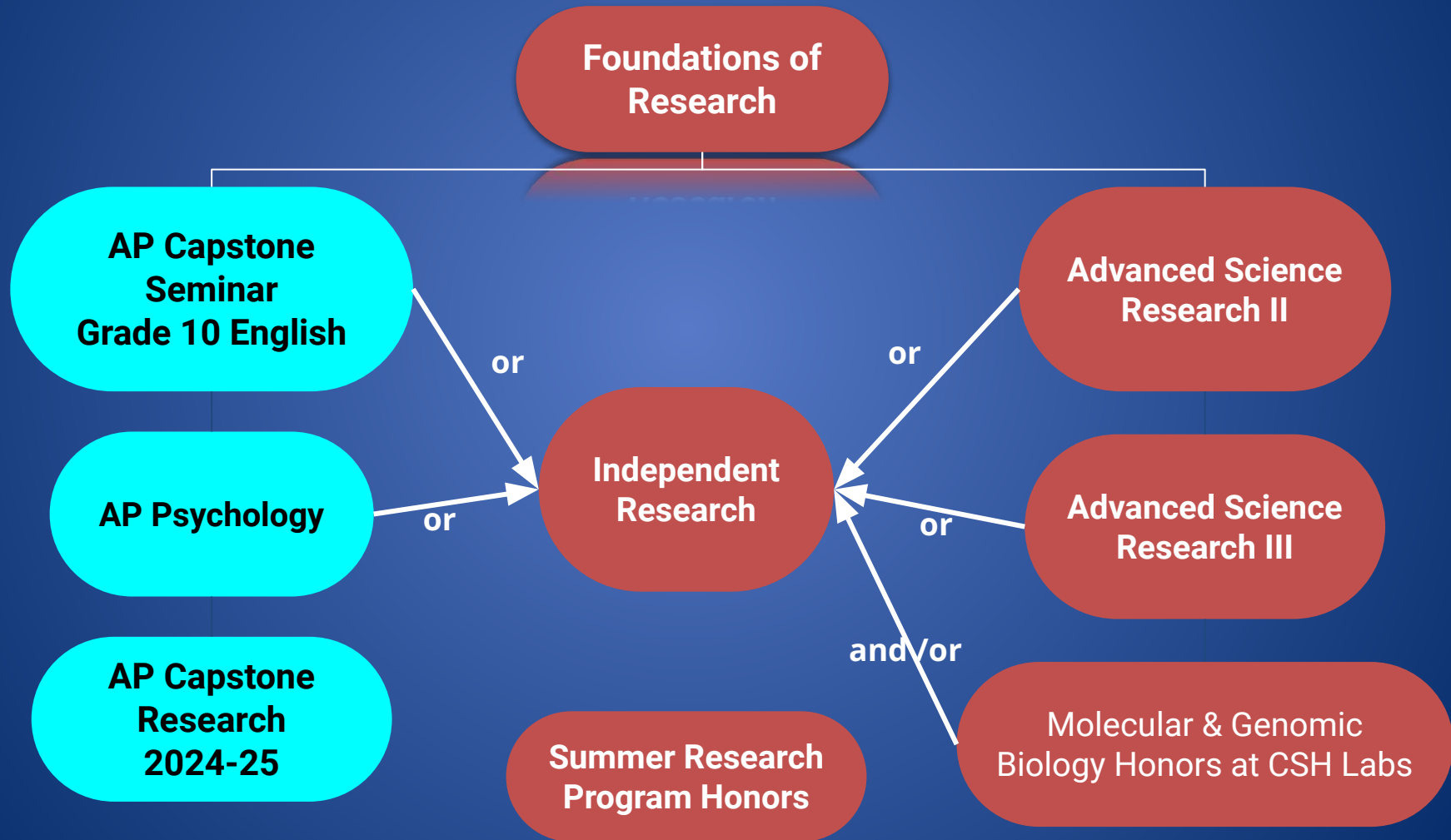


# Why enroll in a Research Program?

- It encourages students to think critically, enhance their problem solving skills, and know more about technical aspects of different fields.
- To encourage the spirit of curiosity.
- To promote independent thought.
- To foster research skills.
- To provide unique learning experiences.
- To stimulate interest in STEM and social science.



# Cold Spring Harbor High School Research Program Progression





# Research Topics



## Social Science

Anthropology  
Behavioral Studies  
Communication  
Criminal Justice  
Linguistics  
Political Science  
Psychology  
Sociology



## STEM Science

Biological Science  
Chemistry  
Computer Science  
Earth Science  
Engineering  
Environmental Science  
Mathematics  
Physics



# Why should I look for outside internship opportunities?

In order for students to conduct research that is both challenging and competitive at the highest levels, it is in the student's best interest to conduct their research at the highest level facility available to them.





# Through an internship...



Students have the opportunity to work with distinguished faculty and scientists, learn laboratory techniques in cutting edge facilities, and become active members of research teams.



July 2022 – August 2022

PI: Dr. Ping Wang

## **The role of extracellular cold-inducible RNA-binding protein (eCIRP) in triggering calpain-dependent ERK/MAPK signaling activation and cytoskeletal breakdown in neurons**

## **On the (dis)similarities of artificial neural networks and the visual cortex**

Amanda Nemshin

September 2022 – March 2023

PI: Dr. Peter Koo



# GSTEM Summer Program at NYU

## Hannah Van Son

1



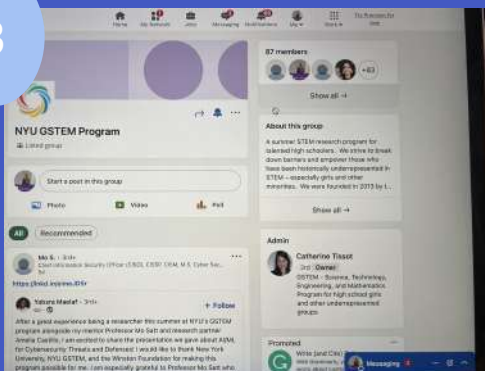
Washington Square Park.

2



Field trip to the MET. Other field trips included Cornell Tech, the Federal Reserve, and Humane (a new technology startup).

3



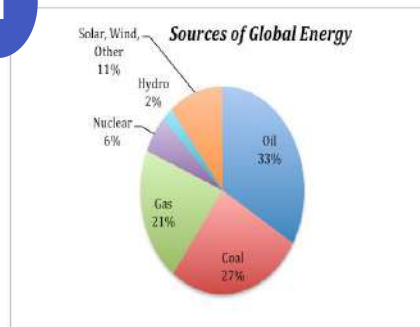
A LinkedIn group of almost 90 GSTEM alumni.

4

**Applications** are judged on the strength of your high school academic work, your essays, your STEM activities, and your recommendation.

# The Mechano-synthesis of $\text{Yb}^{3+}$ Doped $\text{CsPbCl}_3$

1



Pie chart of the Sources of Global Energy (Earth104Mod8Fig1.png).

2

**Problem:** Fossil fuels (coal, natural gas, oil) are contributing to climate change

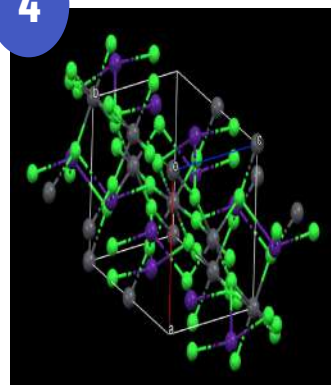
**Proposed solution:** Photovoltaic devices

**Limitations:** Cost and effectiveness of current devices using silicon-based solar cells

3

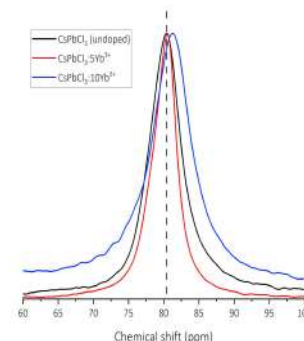
How does ytterbium affect cesium lead chloride crystal structure (if it does at all)?

4



The Crystal Structure of  $\text{CsPbCl}_3$ .

5



Graph of the Chemical Shifts of both Doped and Undoped  $\text{CsPbCl}_3$  Samples.

# Paths to Internships



Structured  
Programs



Personal  
Connections



Independent  
Research

# Structured Programs

- Minimum age of 16, with a few exceptions
- Formal application with strict deadline
- Set start and end date
- Presentations

# Independent Research

- No formal application
- Flexible start and end dates

# Personal Connections

- No formal application
- Flexible start and end dates

# Research Internships - Local



Stony Brook University

THE ROCKEFELLER UNIVERSITY  
*Science for the benefit of humanity*



NYU

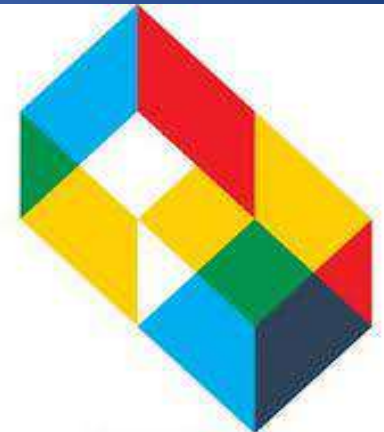


EINSTEIN

Albert Einstein College of Medicine



Feinstein Institute  
for Medical Research  
Northwell Health™



THE COOPER UNION

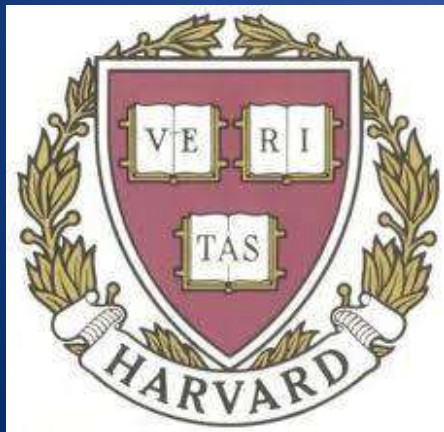
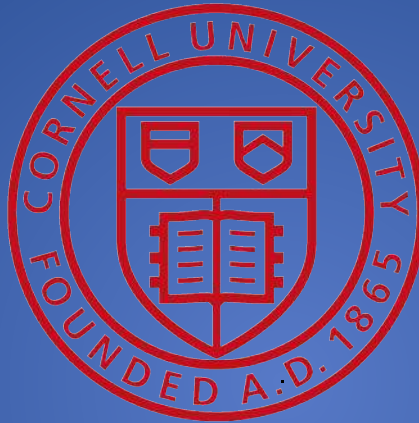
Brookhaven National Laboratory

Office of Science | U.S. Department of Energy

BROOKHAVEN  
NATIONAL LABORATORY



# Research Internships - Distant



# Thank You!

Mr. Jaak Raudsepp  
Science Research Teacher  
[jraudsepp@csh.k12.ny.us](mailto:jraudsepp@csh.k12.ny.us)

Ms. Kerin Moser  
Director of Humanities  
[kmoser@csh.k12.ny.us](mailto:kmoser@csh.k12.ny.us)

Dr. Christine Schlendorf  
Director of STEM  
[cschlendorf@csh.k12.ny.us](mailto:cschlendorf@csh.k12.ny.us)