

## PLASMA SCIENCES EXPO 2018

November 24 and 25  
Suggested Student Questions

### **Auburn University / Wittenberg University**

Edward Thomas, Jr. (etjr@physics.auburn.edu)

Jeremiah Williams (jwilliams@wittenberg.edu)

Lori Scott, (lcs0044@auburn.edu)

Students will be asked to predict an outcome of a demonstration, observe the demonstration, then explain the result.

**PREDICT:** Using your intuition and prior knowledge, write down what you think will happen in the demonstration.

**OBSERVE:** Watch closely and write down what you see happening.

**EXPLAIN:** Was your prediction right? How can you explain what happened? Ask questions and refine your explanation.

### **APS-DPP Outreach**

James Roche (roche@aps.org)

What does LED stand for?

What is a diode?

Which leg of the LED needs to be on the positive side of the battery?

### **Barry University**

Sanja Zivanovic

szivanovic@barry.edu

How does a star, particularly the sun, evolve, in simple terms?

People say that we are made of star dust. Is that true? What does that mean?

**Contemporary Physics Education Project (CPEP)**

Sam Lightner (lightner@westminster.edu)

Cherie Harper (gsphysics@live.com)

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**Florida Atlantic University**

Alexandra DeCesare (adecesare2013@fau.edu)

What is the Van De Graff generator used for?

What makes your hair stand up when you touch the Van De Graaff generator?

**FIU Applied Research Center**  
Leo Lagos (lagosl@fiu.edu)

How do robots work?

Why do we need robots/remote systems when dealing with nuclear waste?

**American Association for the Advancement of Women in STEM (AWSTEM)**  
Tulika Srivastava (tsriv001@fiu.edu)

What are your STEM interests? Are you interested in a STEM career? This booth has advice about pathways to a future in Science, Technology, Engineering and Math.

**Florida International University / Society of Physics Students**  
sps@fiu.edu

What interests you about the exhibit by FIU SPS? Make up a question and get the answer.

Question:

*Answer:*

**Florida Polytechnic University**

Sesha Srinivasan (ssrinivasan@floridapoly.edu)

What interests you about the Florida Polytechnic University display? Make up a question and get the answer.

Question:

*Answer:*

**General Atomics**

Rick Lee (leer@fusion.gat.com)

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**The Laboratory for Laser Energetics (University of Rochester)**

Reuben Epstein (reps@lle.rochester.edu)

What do the letters in the name LASER stand for?

What amount of seawater contains an amount of fusion energy equivalent to the energy in the world's oil reserve? In other words, what volume of seawater, in cubic kilometers, would this be?

What kind of rocket is used to compress fusion fuel to high density?

What is the fusion reaction we are studying, and how is it different from a fission reaction?

**Lawrence Livermore National Laboratory**

Steve Allen (allen18@llnl.gov)

How do radio waves, visible light, and X-rays differ as components of the electromagnetic spectrum?

Why do astronomers use radio, visible light and X-ray telescopes to collect data about the sun and other stars?

**Lawrence Livermore National Laboratory (continued)**

What COLOR is common to the plasmas that we see on earth (like the tokamak) and in the sky (like the Orion Nebula)?

What is the fusion reaction we are studying, and how is it different from a fission reaction?

**Los Alamos National Laboratory**

Liz Merritt (emerritt@lanl.gov)

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**MIT Plasma Science and Fusion Center**  
Paul Rivenberg (rivenberg@psfc.mit.edu)

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**NASA / Exploration Ground Systems**  
Genger Benson Perez (genger.k.bensonperez@nasa.gov)

What is the job of Exploration Ground Systems at NASA?

What is the Crawler Transporter and how much does it weigh?

What was the computer launch system for the Apollo Program called?

**NIF Laser Road Show**

Patrick Lestie Poole (poole11@llnl.gov)

Where are fiber optics used in the NIF laser, and why can't they be used everywhere?

What colors of light does the NIF laser use?

**Northeast High School / Lemelson-MIT Invent Team**

Randa Flinn ([Randa.flinn@browardschools.com](mailto:Randa.flinn@browardschools.com))

Lise Mabour ([lise.mabour@browardschools.com](mailto:lise.mabour@browardschools.com))

Would your invention, the Mosquito Agitator, eliminate all mosquitoes in an area?

How can other students become inventors?

**Ohio State University**

Christopher Orban ([orban.14@osu.edu](mailto:orban.14@osu.edu))

What are three different ways to predict what is going to happen in a physics experiment?

Charged particles have what kind of field?

## Princeton Plasma Physics Laboratory

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## STEM + Computer Science / Broward County Public Schools

Lisa Milenkovic ([Lisa.milenkovic@browardschools.com](mailto:Lisa.milenkovic@browardschools.com))

Rebecca Malones ([rmalones@browardschools.com](mailto:rmalones@browardschools.com))

How can I get involved in computer science, robotics or environmental initiatives in my school?

## Telops

Ben Saute ([Benjamin.saute@telops.com](mailto:Benjamin.saute@telops.com))

What interests you about infrared technology? Make up a question and get the answer.

Question:

*Answer:*

## University of California Los Angeles (UCLA)

Gurleen Bal ([gurleenkbal@physics.ucla.edu](mailto:gurleenkbal@physics.ucla.edu))

How is plasma created from a gas?

How does a plasma produce light?

What are some examples of plasma in everyday life?

**UCSD Center for Energy Research**

Saikat Thakur (saikat@ucsd.edu)

What does an electric motor do and what is the source of energy for the motor? How does this compare to an electric generator/dynamo?

What are the most common sources of energy production in the world? Can you quantify how much? Can you name some renewable sources of energy?

What is “plasma”? How do you make plasma? Have you ever seen naturally occurring plasma?

**University of Florida / Society of Physics Students**

Jonathan M. Gant (sps@phys.ufl.edu)

What interests you about the University of Florida’s exhibit? Make up a question and get the answer.

Question:

*Answer:*

**University of Michigan**

**Michigan Institute of Plasma Science and Engineering**

Carolyn Kuranz (ckuranz@umich.edu)

What is a plasma?

How do you turn a single laser beam into two beams?

What happens to a wave at an interface between 2 fluids of different densities?

**University of Central Florida / Laser and Plasma Laboratory**  
Martin C. Richardson (mcr@creol.ucf.edu)

How does a laser form a plasma filament?

**University of Iowa - Planeterra**  
Scott Baalrud (scott-baalrud@uiowa.edu)

What causes an aurora?

What is the solar wind?

What are the Van Allen radiation belts?