

# Coalition for Plasma Science: New Leadership, Recent Activities, & Future Initiatives

Prepared by: [Eva Kostadinova](#) & Dmitri Orlov

**Evdokiya (Eva) Kostadinova, Ph. D.**

CPS Chair, May 2021 – now

Assistant Professor, Physics Department

Leach Science Center, Office: 3125

Auburn University, AL 36849

Office phone: (334) 844-4298

Fusion Power Associates Meeting

Washington, D.C.

Dec 15, 2021



# Introduction to the Coalition for Plasma Science



- 🔗 Established in 1997 as a non-profit organization.
  - ⚡ **Motivation:** NRC's 1990s decadal survey of plasma science showed very low level of awareness of the field among both general public and fellow scientists
  - ⚡ **Founders:** CPS founded by Rick Temkin (MIT PSFC), Toby Smith (MIT Washington Office), Gerald Rogoff (Sylvania, MIT PSFC), Paul Rivenberg (MIT), Steve Dean (FPA).
  - ⚡ **Previous Leadership:** Lee Berry (ORNL) became chair in 2000s and stepped down in 2019.
- 🔗 CPS developed a highly viewed **web page** ([www.plasmacoalition.org](http://www.plasmacoalition.org)) and held well-attended **educational events** for members of Congress and their staffers on **Capitol Hill**.
- 🔗 CPS **funded prizes** in plasma science at the Intel International Science fair.

# CPS Welcomes New Leadership



## 🚀 2021 – New CPS Leadership Elected

⚡ Chair: **Evdokiya (Eva) Kostadinova** (Auburn U)

⚡ Vice-Chair: **Dmitri Orlov** (UCSD)

## 🚀 List of active members

⚡ Treasurer: Steve Dean (FPA)

⚡ Secretary: Paul Rivenberg (MIT)

⚡ Board: Rick Temkin (MIT), Mark Kushner (U Michigan), Arturo Dominguez (PPPL), Elizabeth Sterling (DIII-D), Kristen Coyne (ORNL), Saikat Chakraborty Thakur (Auburn U)



Kostadinova and Orlov aim to highlight intellectual diversity and breadth of applications available within the plasma science and engineering community.

# CPS Initiatives to Address Plasma 2020 Findings and Recommendations



🔗 **Finding:** *PSE is inherently an interdisciplinary field of research. While the underlying science has common intellectual threads, the community is organized into sometimes isolated subdisciplines.*

## ▪ **CPS Initiatives:**

- **Press highlights** of interdisciplinary research (work with **Elizabeth Sterling**, DIII-D - Scientific Outreach Coordinator, **Kristen E Coyne**, ORNL - Public Communications Specialist / US ITER, **APS DPP Press Release Committee**)
- **APS DPP reception** (joint with Physical Review Journals) hosting panel discussion on opportunities and challenges in cross-disciplinary work  
(Video: <https://www.youtube.com/watch?v=cz-mq117mIM&t=930s>)
- Writing **2-page documents** on emerging fields of PSE and posting on CPS website

# CPS Initiatives to Address Plasma 2020 Findings and Recommendations



🔗 **Finding:** *Plasma-specific educational and research programs that also provide opportunities to diverse and less advantaged populations are needed to ensure a critically populated PSE workforce.*

## ▪ **CPS Initiatives:**

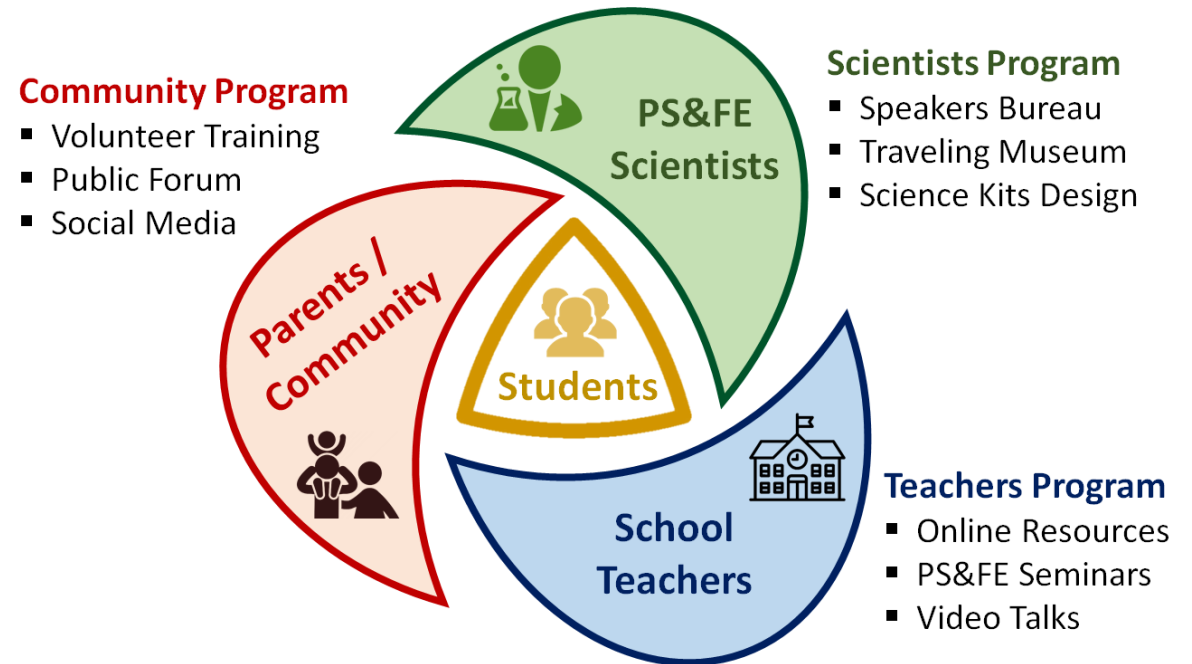
- Establish **Plasma Network for Outreach and Workforce (PlasmaNOW)** website **plasmanow.org** to compliment the goals of **usfusionenergy.org**
- **APS GEC reception** hosting panel discussion on undergraduate career opportunities in both academia and industry (Video: [https://www.youtube.com/watch?v=OpHC\\_S6ZTtA](https://www.youtube.com/watch?v=OpHC_S6ZTtA))
- Using the CPS website to **highlight work by other organizations** with similar goals.

# Plasma Network for Outreach and Workforce



🚀 *The goal of this initiative is to increase literacy of plasma science and fusion energy and to improve student involvement in related degrees/employment opportunities by developing a Plasma Network for Outreach and Workforce (Plasma NOW).*

- Presented at **APS DPP CPP**
- Website under development: [plasmanow.org](http://plasmanow.org)
- **Founders:**  
Eva Kostadinova ([egk0033@auburn.edu](mailto:egk0033@auburn.edu))  
Shannon Greco ([sgreco@pppl.gov](mailto:sgreco@pppl.gov))
- **White paper** for APS DPP CPP:  
<https://docs.google.com/document/d/1yCzFIF-a9CRuMb6sQijyvDAUHaRoQtn94aLgIR8zqfU/edit>



# In the past six months, work was focused on re-launching CPS



## 🚀 CPS presentations/announcements were made

- ⚡ Conferences & Workshops: APS Gaseous Electronics Conference (**GEC**) and APS Division of Plasma Physics (**DPP**), **MagNetUS** Inaugural Workshop
- ⚡ Meetings: IEEE Nuclear and Plasma Science Society (**NPSS**), US Fusion Outreach Team (**USFOT**), University Fusion Association (**UFA**), National Academies of Sciences (**NAS**) Board on Physics and Astronomy, Fusion Power Associates (**FPA**)
- ⚡ Newsletters: International Low Temperature Plasma Community (**ILTPC**), NPSS

## 🚀 Media presence was re-established

- ⚡ CPS **website** is being updated (events, memberships, etc.)
- ⚡ CPS **social media** accounts (Facebook, Instagram, and LinkedIn)

# Future Activities: Undergraduate Student Award



- 🚩 In 2005, CPS established a presence at the INTEL International Science and Engineering Fair, sponsoring a \$1000 Plasma Science Prize for the best plasma-related project (\$1500 in later years).
  - ⚡ IEEE NPSS & APS DPP provided support for this award
- 🚩 CPS considers establishing a new student award to highlight outstanding work conducted by undergraduate and early-stage graduate students.
  - ⚡ The award will be given out in several research areas including low-temperature plasmas, nonneutral plasmas, inertial confinement fusion, magnetic confinement fusion, waves and beams, space plasmas and plasma astrophysics.
  - ⚡ The awards will be given at a national or international conference / fair.



# Join the Coalition!



- ⚡ Coalition for Plasma Science website: [www.plasmacoalition.org](http://www.plasmacoalition.org)
- ⚡ CPS publishes regular newsletters (archive available on the website)
- ⚡ Contact emails: [egk0033@auburn.edu](mailto:egk0033@auburn.edu) (Eva Kostadinova) and [dorlov@ucsd.edu](mailto:dorlov@ucsd.edu) (Dmitri Orlov)
- ⚡ List of members includes universities, national labs, private companies, professional societies, international members.

# CPS Receptions and Panel Discussions at Upcoming Conferences



## 🚀 APS GEC (Oct 4-8, 2021) – virtual

- *Reception Date & Time:*  
Tuesday, Oct 5, 5-7 PM (local)
- *Panel Discussion Topic:*  
“Career Opportunities for Undergraduate Students”
- *Long-Term Goals:*  
Encourage undergrad attendance in GEC by sponsoring undergrad-specific sessions and awards
- *Video:*  
[https://www.youtube.com/watch?v=OpHC\\_S6ZTtA](https://www.youtube.com/watch?v=OpHC_S6ZTtA)

## Joint with Physical Review Journals

## 🚀 APS DPP (Nov 8-12, 2021)



- *Reception Date & Time:*  
Tuesday, Nov 9, 5-7:30 PM (local)
- *Panel Discussion Topic:*  
“Frontiers of Interdisciplinary Research in Plasma Science & Engineering”
- *Long-Term Goals:*  
Promote cross-disciplinary work and emerging fields at the intersection of plasma physics and other fields
- *Video:* <https://www.youtube.com/watch?v=cz-mq117mlM&t=930s>