Physics Clubs and Undergraduate Women In Physics

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Pion Project: the Role of Clubs

- <u>The PION project</u>: a study investigating physics identity of undergraduate women in physics.

- Undergraduate physics environment →<u>Physics/STEM based Clubs</u>

- Investigating the role of <u>physics clubs</u> for <u>undergraduate women in physics</u>.
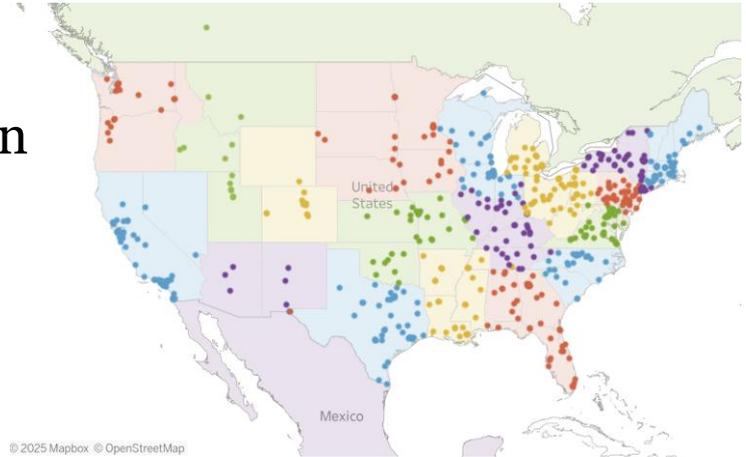
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A map of Society of Physics Students chapters across North America.

Our perspective & motivation

We are:
- First-time leaders
- Undergraduate women in physics
- Students with the same needs.

While studying physics identity in relation to clubs, we wondered:
1. How can a club truly be successful?
2. What we can we do to help physics students be successful?
3. How are student members affected?

Methodology

Clubs = student organizations in in which students interact with a physics community

- Identity based clubs
- STEM clubs
- physics clubs, etc

- 31 students interview data Pion
- 3 levels of coding:
  1. Clubs
  2. Experiences +ve
     Experiences -ve
     Expectations
  1. Analytical grouping: Leadership, Mentorship, Community/Belonging, Recognition

Club Experiences – how did these students experience physics/STEM clubs?

- Positive:
    - Community: Belonging + Recognition
    - Mentorship
    - Confidence and Development of Skills
- Negative:
    - No negative experiences for students who were actively participating in clubs

What do physics students want or need from physics/STEM clubs?

- **Mentorship:**
  - Places to network and find mentors
  - Connection to department
- **Recognition:**
  - Abilities recognized
    - Encouraged/pushed to pursue new roles/opportunities
  - Recognized as physics person

"a **grad student or faculty** member would come in, **talk about their experience and journey** with physics...We've also had events...about **plans for graduation and advice with what classes to take**"

-Saanvi (pseudonym)

" I think it makes me feel a little bit **more confident** to like, **take charge in an environment and like assert myself** and like, feel like **I can ask questions or like feel like I belong in a space**."

-Charlotte (pseudonym)

Competence → Confidence

What do physics students want or need from physics/STEM clubs?

- **Leadership:**
  - Opportunities to expand skill-set
- **Community:**
    - Friendships/ interpersonal bonds
    - Camaraderie
    - Sense of belonging

"**I'm the president of Sigma Pi Sigma at my school....I really enjoy it. It's taught me a lot.**"
- Xandria (pseudonym)

"it's nice, like I'll like see **friends of mine who are undergraduates** there. I'll see like **my professors** there. I'll see like, like **other graduate students** that I met before there. It's just really, really nice."
- Amelia (pseudonym)

Competence → Confidence

How can clubs address student needs and expectations?

- Have networking and social activities
- Professional development activities
- Bringing faculty into club events so students can make connections for possible mentorship
- No-pressure space/events for students to exist in community
- Inviting and encouraging students to lead

What can departments do to meet student needs and expectations?

- Help promote clubs
- Engage in club activities
    - Present on research opportunities
    - Be open to mentor students
    - Get to know students through the clubs
    - Share personal experiences in physics

Thank you!

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