

Women in Plasma Physics

APS-GEC October 10th 2020

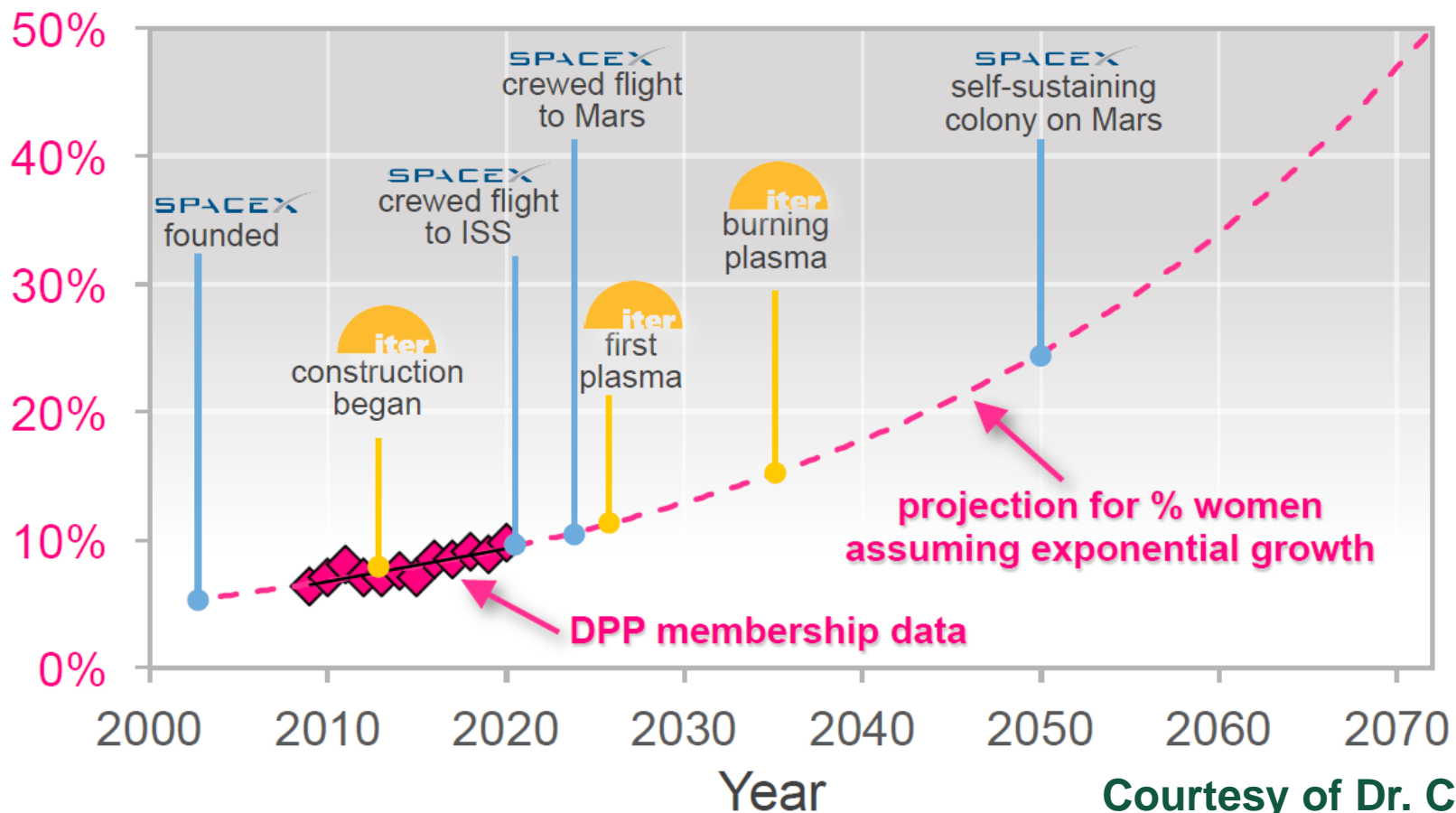
Prof. S. Mordijck

W&M



To infinity and beyond?

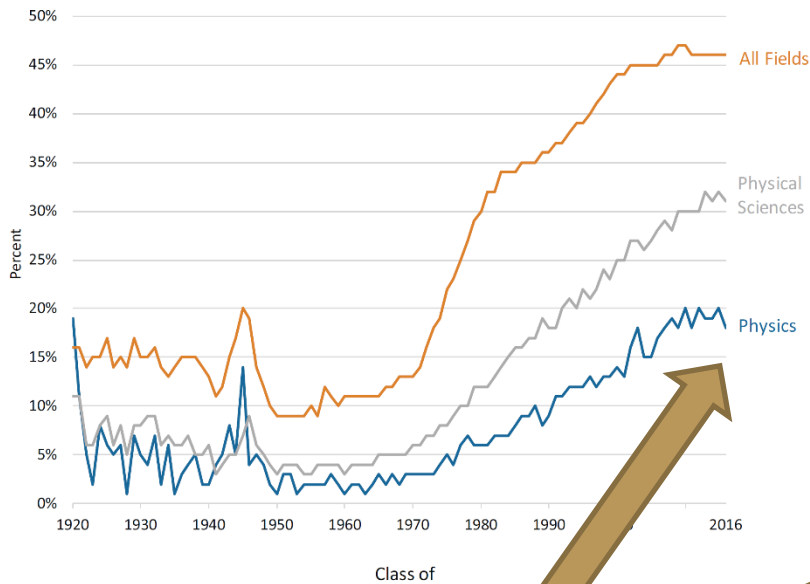
Representation of Women in the American Physical Society Division of Plasma Physics



Courtesy of Dr. C. Collins

How do we compare to others and what about our pipeline?

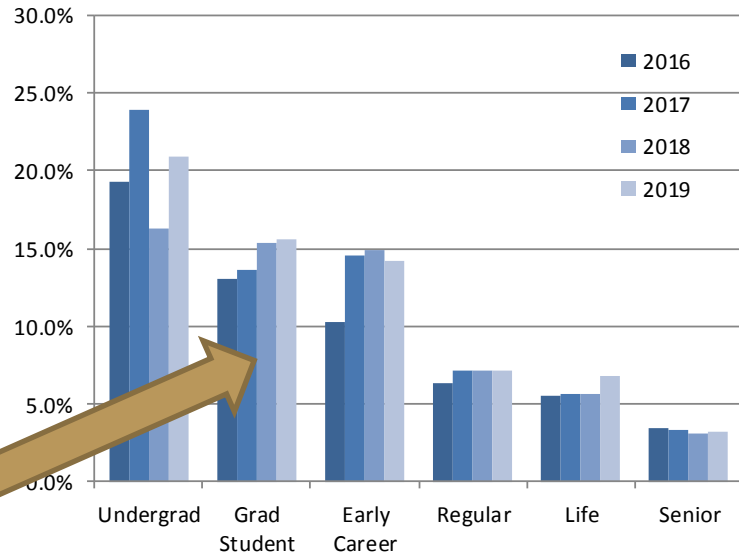
Percent of PhDs Awarded to Women in Specified Fields, Classes of 1920 through 2016



Source: National Science Foundation, National Center for Science and Engineering Statistics. Data Compiled by AIP Statistical Research Center.

AIP Statistics

Women in Each Membership Category



General physics 20%
Plasma physics 12-15%

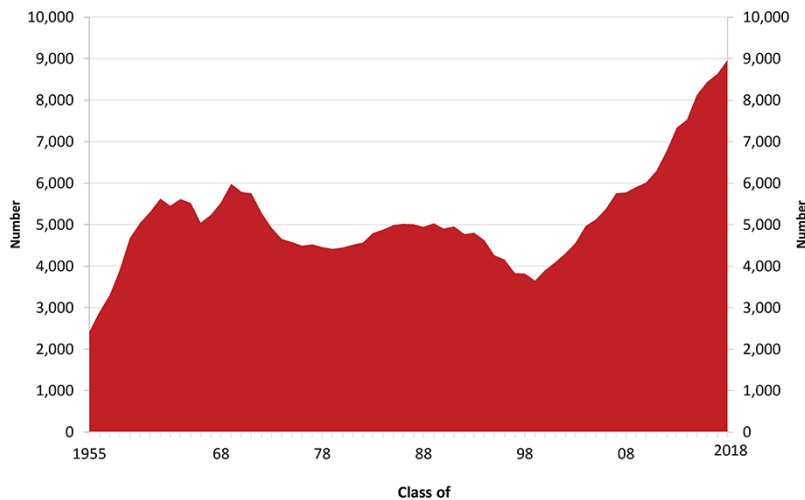


While 99% of all matter comes in the form of a plasma,
physics departments do not teach plasma at an
undergraduate level

**760 institutions offer bachelor's
degrees in physics
and
170 offer PhDs.**

~70 institutions
present at recent graduate
school fair for plasma &
fusion (not all PhD granting)

Physics Bachelor's Degrees Awarded



~800 student members DPP

**This number has been
constant for the last 3 years**

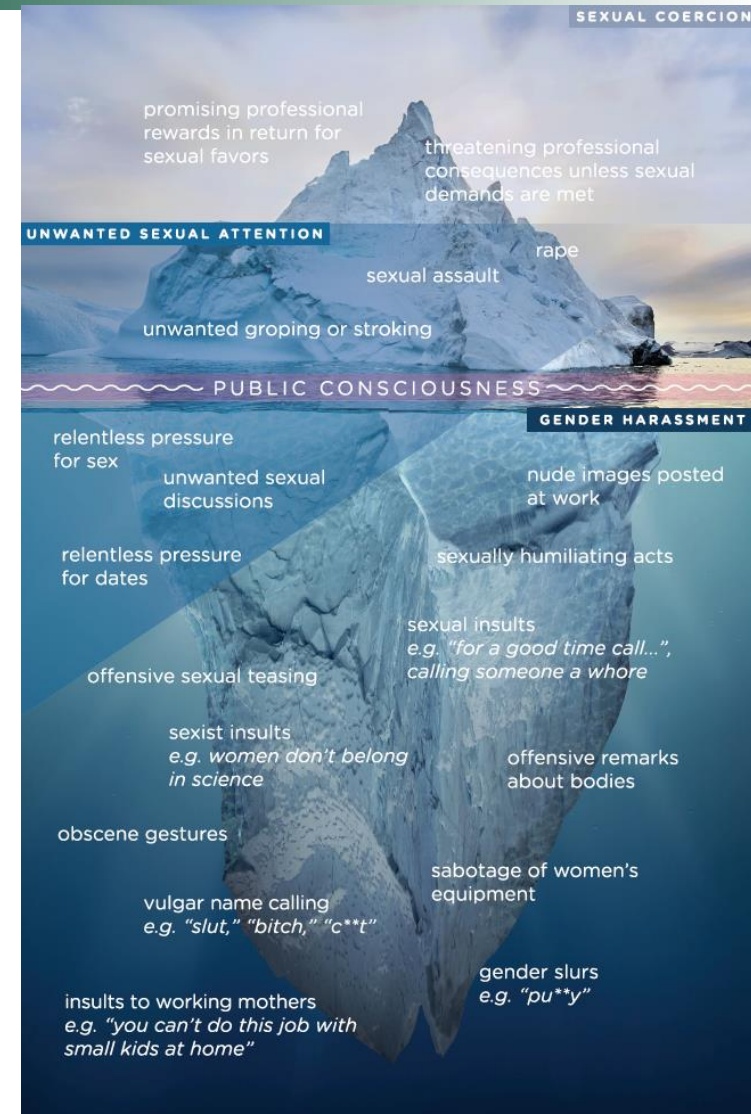
What makes the climate to women in (plasma) physics hostile?

NAS 2018 report on sexual harassment in academia

- Key observations on prevalence:
 - sexual coercion is rare: 4% of women report experiencing this *in the past year*
 - unwanted sexual attention: 25% of women report experiencing this *in the past year*
 - gender harassment is very common: 59% of women report experiencing this *in the past year*

These rates are correlated

- Most of these behaviors center around contempt for women rather than desire
- Most of the behaviors come from peers rather than supervisors



So how can we change the status-quo and at least go for exponential growth?

Increase the pipeline

Increase retention

Increase Thriving

- **Increase the number of institutions** with plasma faculty member
- **Role models**
- Introduce **plasma** in **undergraduate** level **courses**
- **Partner** with **URM schools** to provide **research experiences/equipment**
- **Summer school** opportunities
- Improved **partnership** with **NL** and **more REU** opportunities
- **Holistic approach** to **graduate school** admissions
 - GRE and GRE-physics are better at predicting race/gender than PhD success



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- **Accept and take responsibility** that something must change
- Have a **Code of Conduct**
- **Train leadership** to **understand and address** issues related to climate
- Make **diversity and climate part of work evaluation**
- Role models: **diverse leadership**
- **Create networks** (across institutions when numbers are too low)
- **Don't put the burden on the minority to fix the climate**



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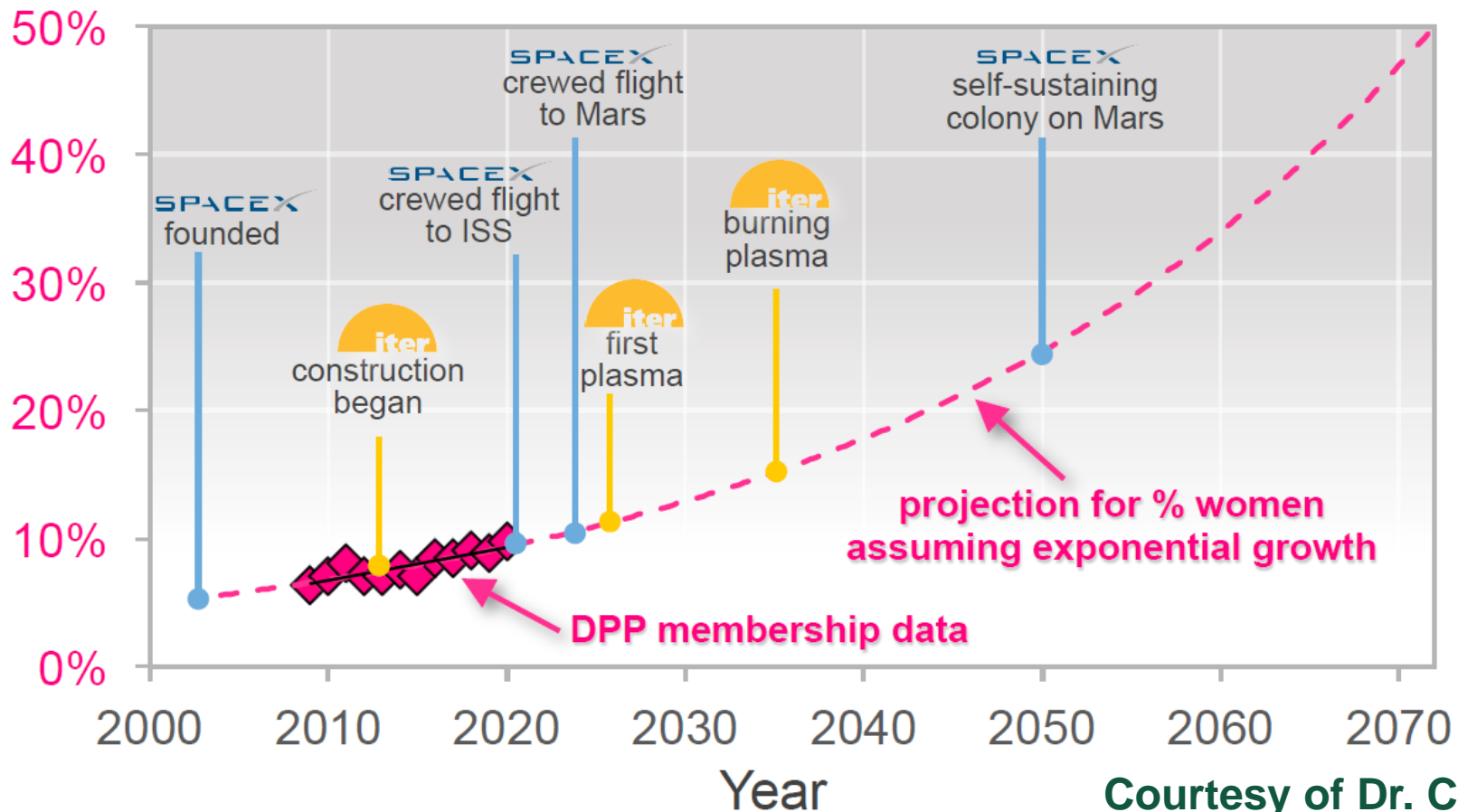
Increase
Thriving

- Adopt **double blind reviews** for
 - Experimental time
 - Funding proposals
 - Publications
- **Transparency** in **hiring, promotions and distribution of resources**
 - Often leaders are appointed within an organization, no open application process
- **Actively seek out diverse candidates** for leadership and other positions
 - Imposter syndrome is well documented among URM candidates



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