Imagine a world where everybody is treated with courtesy and respect.

Imagine a world where we celebrated everybody's accomplishments and furthered their careers.

Imagine a world where all people are valued and nurtured.



Imagine a person who made it her life's mission to push the high energy physics community steadily towards these goals:

Meenakshi Narain 1964-2023

# thank you so much...

To Boaz Klima, Aaron Dominguez, Bo Jayatilaka, Ken Bloom, Elisabetta Gallo, Claudia Wulz, Gabrielle Benelli, Marguerite Tonjes, Christine McLean, Julie Hogan, Alexx Perloff, Tulika Bose for their contributions towards this memorial of Meenakshi's contributions to our community.

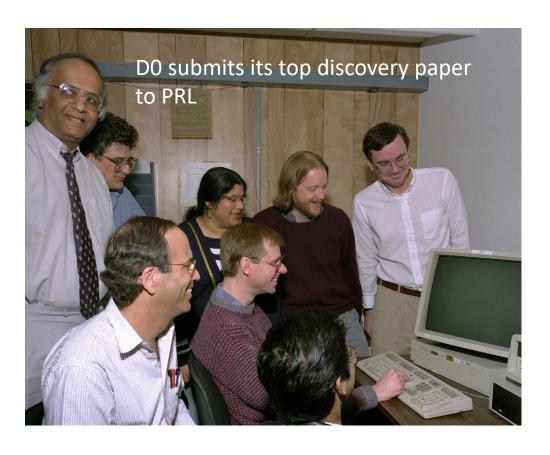
# How can we bring in the missing faces?





# Bringing in the missing faces

Do by setting an example of what can be done. But the existence of Marie Curie or Meenakshi Narain does not seem to be enough.



Instead, what is needed is hard, persistent work to change a culture and its expectations. Meenakshi was eager to do this difficult and generally unrewarded work.

- Activitely promoting women for leadership positions as head of LPC
- creation of CMS diversity office
- creation of USCMS DEI committee
- Initiated the USCMS APS Climate Committee Site visitation
- made education on challenges/obstacles a regular part of USCMS activities
- major contributions to development of the USCMS DEI plan for the funding agencies and representing our efforts in NSF/DOE JOG meetings (more in Sudhir's talk)
- participation in CMS woman's forum
- organizing the upcoming 2023 APS CUWiP at Brown
- creating the Big Bang Science Fair
- documenting status/efficacy via statistics
- Sudhir Malik will talk about the ground-breaking PURSUE internship

# Woman's forum



## 2009

Founded by Meenkshi with others

International Day of Women and Girls in Science -Instagram









Two of our colleagues took over the CMS Instagram on 11th February!

- Showing behind the scenes of being a physicist at CMS
- Answering questions
- Each story was seen by 700-1000 people

## **Promoting International Womens Day**

- Our goal: Celebrate women in Physics
  - Highlight women in Physics and in CMS as role models
  - inspire young girls to pursue science by showing some of nice stories of CMS Women

- Grass roots effort to collect photos and quotes for collages with women in eight categories: PhD students, Master students, Postdoctoral fellows, Undergraduate students, Junior scientists, Senior scientists, Administrative staff, Technical staff
- Photo Gallery on the public CMS web page with the portraits of women in CMS including captions with individual statements: <a href="https://cms.cern/photo-gallery">https://cms.cern/photo-gallery</a>
  - Super-useful picture gallery provided by CMS women & engagement office/supported by CMS outreach office wonderful resource for the future
- Posting some portraits during the day in different media (twitter, facebook, Instagram,...
- · Lessons Learned:
  - · Our stories/good quotes got lost in the collages, though the information is on the website.
  - · Need to figure out how to best use social media to get the stories across.
- Take it to the next step by highlighting the stories:
  - For example, some CMS women, in their quotes, said they pursue science because their teacher proposed this as one of many possibilities and they chose the option and are happy about it which is maybe not as glorious as a statement "I have been dreaming about becoming a scientists ever since." Dut it's honest and (more importantly) it's helping young girls to see that they can become scientists even if they are not













## International Women's Day 2019

- 8 CMS Women shared their experience in physics and give advice to the next generations
  - https://www.youtube.com/watch?v=c5PnoIHiZxY&t=177s
  - https://www.facebook.com/CMSexperiment/videos/1299338800216339/
  - https://twitter.com/CMSExperiment/status/1103944135994691585

## #3 most popular CMS Facebook post ever!



# At LPC

Work continued during her time as co-head with Boaz of the LPC, 2013-2016.

As co-head of LPC with Boaz Klima, 30% of LPC committee leadership was female..

# Creation of CMS diversity office

## Mandate

- Goal of the CMS Diversity Office (DO):
  - To foster a working environment where all members of the Collaboration can thrive and bring in their talents, irrespective of age, career status, employment situation, institutional affiliation, geographical location, nationality, gender, ethnicity, family situation, sexual orientation, or disabilities

## • Mandate:

- advise management and individuals on diversity related matters
- propose actions to promote diversity and create awareness
- monitor and record statistical information related to diversity
- actively listen to Collaboration members' concerns
- report regularly to the Collaboration about status and progress of diversity-related issues
- collaborate with relevant bodies outside CMS such as the CERN Diversity Office if required
- DO approved in April 2017 and its full membership approved December 2018
  - 2 Co-Chairs and nine members
- CMS DO is a body of the Collaboration Board.

E-groups:

Diversity Office chairs:

cms-diversity-office-chair@cern.ch

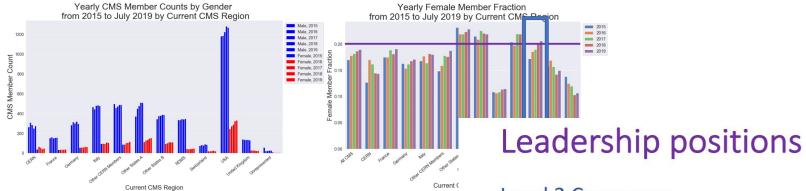
Force behind the creation of the CMS diversity office. She served as co-chair 2017-2018 when she started as US CMS chair and after that continued to be an active member until 2022. She was was the lead force behind collecting and analyzing diversity data for the collaboration, which she presented at a number of international conferences and was a fierce proponent of that transparency as a way to improve the collaboration

## Via statistics

## **CMS Demographics**

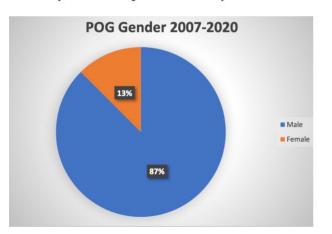
Narain/DPF 2019

• Trends in CMS membership by region, and gender



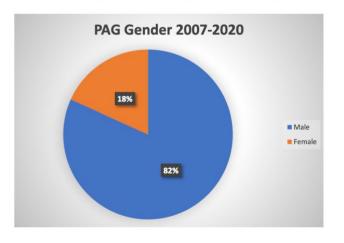
Other CERN members: Austria, Belgium, Bulgaria, Finland, Greece, Hungary, Poland, Portugal, Serbia, Other States A: China, India, Iran, Korea, Malaysia, New Zealand, Pakistan, Sri Lanka Other States B: Bahrain, Brazil, Colombia, Croatia, Cyprus, Ecuador, Egypt, Estonia, Ireland, Kuwait, Lebanon, Lithuania, Mexico, Montenegro, Oman, Qatar, Saudi Arabia, Turkey, Ukraine

Level 2 Conveners
Physics Object Groups



and

## Physics Analysis Groups

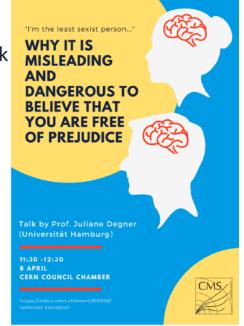


# Some of its activities

- We plan to highlight one important topic at each "CMS Collaboration Week" (4 times a year at CERN + 1 outside)
- April 2019 CMS week organized talk and discussion on "Unconscious Bias":
  - Prof. Juliane Degner (Hamburg)

"I'm the least sexist person: why it is misleading and dangerous to believe that you are free of prejudice"

- · open to entire CERN community
- Talk was very well attended and a topic of discussion throughout that week
- Webcast available (for at least one year after)
  - https://cds.cern.ch/record/2670668
- June 2019 CMS week discussed "Imposter Syndrome":
  - Open to CMS members only
  - Discussion used experiences from within the CMS community
    - collected anonymously prior to the discussion
  - An engaging and thoughtful conversation



F 2019

# CMS task force on diversity and inclusion

After a CMS L1,L2 appointment round with surprisingly low number of female new conveners, working with many others

Dear Harrison and Collaboration Board,

June 2020

We are writing this letter to express our concern that while the current process of management selection in CMS may result in excellent choices, it does not take advantage of nor reflect the full diversity and potential of our collaboration.

CMS has evolved into a modern, large, international collaboration of scientists from across the globe. CMS necessarily relies on extensive management, formalized with a constitution, as well as representative bodies (Collaboration Board, Management Board, XEB). Currently in CMS, we elect our Spokesperson, who together with his/her management team and input from the search committee, chooses the rest of CMS management. It is essential, if we want to justify the large expenditures of our nations on this science, that the choices are made with due consideration to all in CMS. Ideally, CMS managers would be selected from a talented, diverse, and geographically-distributed community. Yet because of the sheer size of the collaboration, leaders and innovators in the different sub disciplines that contribute to CMS often have had little to no personal interactions with each other, and there are often excellent candidates for a job who are not necessarily people who are well known to a particular leader. It is possible to find these collaborators, but often only after nominations, research, and recruitment.

## CMS Task Force on Diversity and Inclusion (TFDI)

- Established in Summer 2020
- The Task Force was charged with developing a proposal to institutionalize within CMS, appropriately adapted, mechanisms known to increase diversity and inclusion in appointments.
- Diversity includes, but is not limited to, geographical and gender diversity.
- The proposal was presented to the Collaboration Board in a regular meeting of the CB in July 2021.
- Subject to approval by the CB, the CB Chair will initiate the implementation of the proposal consistent with the CMS Constitution and practices.

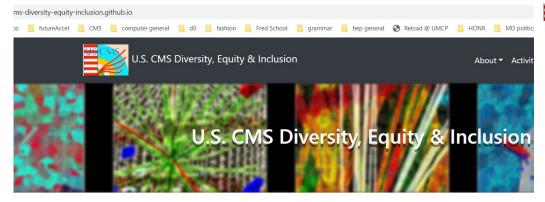
Meenakshi was a major driving force of the TFDI, and in particular on its high-level recommendation #5, the one on the creation of a "Diversity Oversight Committee". In the ITDI report, this is now called "Diversity Monitoring and Oversight Committee", and is scheduled to be put up for approval at the CB meeting in April.

## CMS TFDI – Timeline

- The Task Force consisted of 18 members 9 Men and 9 Women
- Proportional Representation from Geographical regions
- Collaboration Board (CB) and Spokesperson Team as ex-officio members
- Task Force approved in CB meeting on 25th September 2020
- Task Force divided into 5 working groups.
- From October 2020 till May 2021, the TFDI met about 25 times
- A 47 page report released to the collaboration on 2nd June 2021
- TFDI report presented to the collaboration board in July 2021 for approval of recommendations.

https://cms-docdb.cern.ch/cgi-bin/DocDB/ShowDocument?docid=14276

# Creation of USCMS DEI committee



#### Mission

The U.S. CMS Collaboration is committed to empowering its members to develop and achieve their full potential as excellent and innovative particle physicists. The Collaboration acknowledges that diversity, equity, and inclusion (DEI) are fundamental values that impact all aspects of work by the members of our community, within HEP and within the wider field of physics. Our vision for diversity is that the U.S. CMS Collaboration, in all of its aspects (including research, operations, and projects), has a working environment where all members of the Collaboration can thrive and bring in their talents, irrespective of their dissimilar characteristics. The U.S. CMS working climate is positive, respectful, and supportive of all.



#### Recent Events:

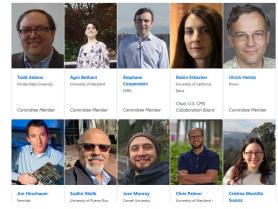
No events currently soon!

## 

- Committee Members:
- ★ graduate students
  - Farrah Simpson, Jieun Yoo,
- ★ postdoctoral fellow
  - Alexx Perloff & Chritine McLean
- ★ early career faculty/scientists
  - Javier Duarte, Chris Palmer
- ★ tenured faculty/scientists.
  - Todd Adams, Julie Hogan,
  - Keti Kaadze [add your name here]
  - Sarah Eno [CB Deputy Chair]

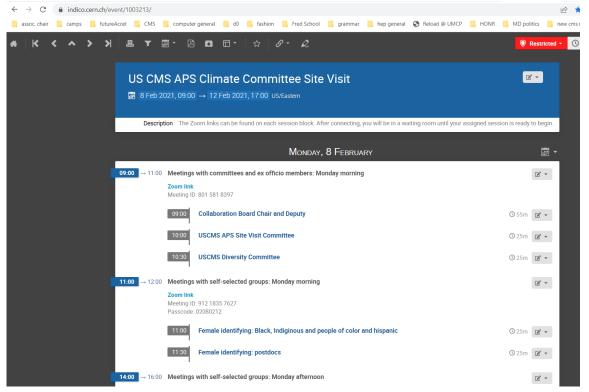
## **Email Contact**

### **Present Members**



## USCMS APS Climate Committee Site visitation 8-12 Feb 2021

## During her term as USCMS collaboration board chair



## U.S. CMS discussion: concerns & suggestions

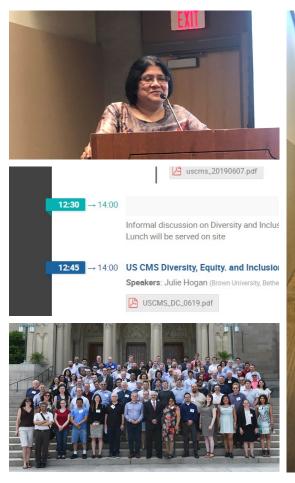
- · "Group think" -- thinking about diversity should help us avoid this aspect of collaboration
  - Possible action: provide resources on in-group/out-group thinking, intergroup dialogue?
- Lack of family-friendly time schedules (meetings, total work hours), "ignore your family for success" perception
  - · Possible action: provide support (via mentor?) for people who feel pushed out by their family needs
- Supporting our undergraduates: be there, check in, encourage wellbeing and group work
  - Possible action: mentoring could provide a way for students to have someone check in if it's difficult at the
    university with many students and few supervisors.
- Promote Leadership opportunities which are family friendly, teaching schedule friendly, etc.
  - Possible action: advocate for more remote leadership opportunities
- HEP groups could use guidelines for less-biased searches (race, gender, previous association)
  - Possible action: provide guidelines (website/Twiki).
- Pipelines to and through graduate school for HEP students that enter undergrad at a disadvantage.
  - Needs more discussion! This idea was distinct from initiatives like the APS Bridge Program.
- Working with science students even before college: CMS outreach programs, Ohio State ideas for middle school and high school students
  - Possible action: gathering point for young-student outreach opportunities in USCMS (website/Twiki)

# 4 USCMS annual meetings

Make thoughtfulness on inclusion an expected part of our work

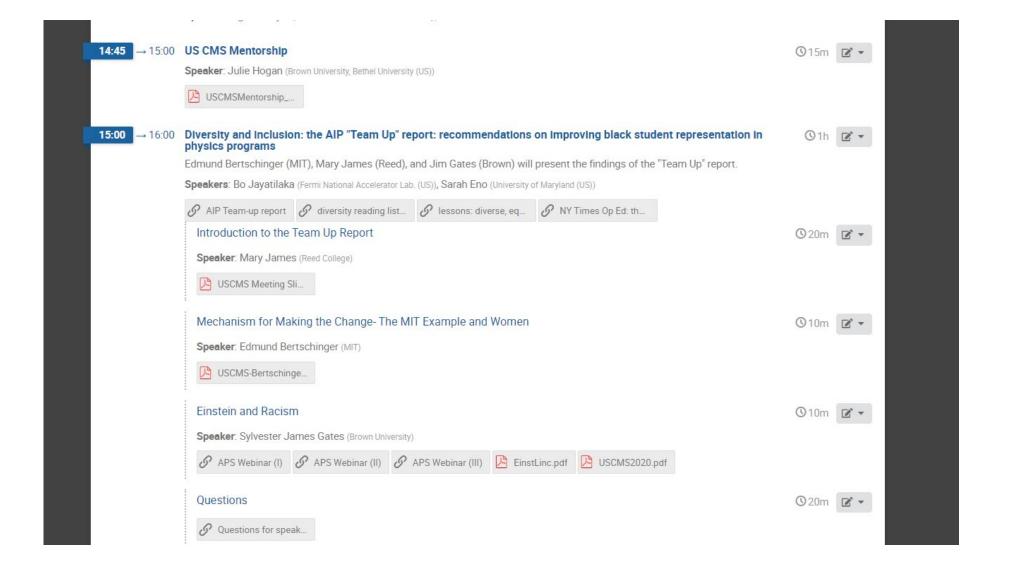
Theme: Educate, celebrate, include

# 2019: Catholic University

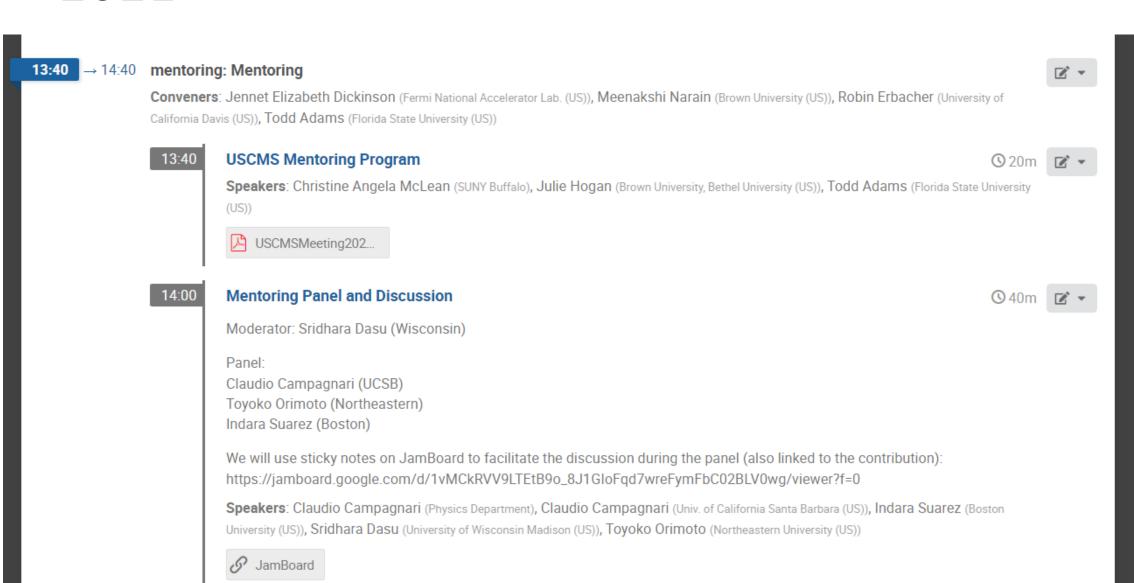




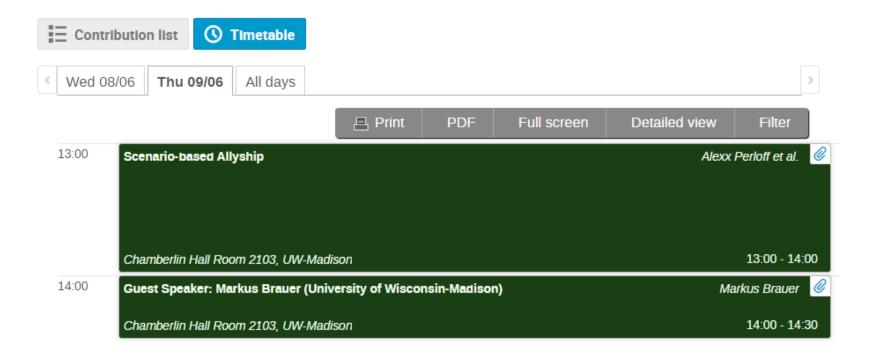
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# Participation in Washington trip

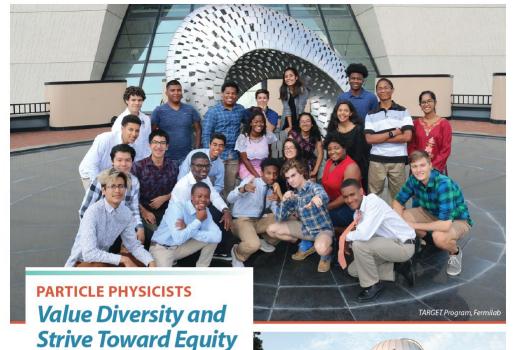
Meenkshi helped create and was featured in a US HEP DEI brochure created for this trip, 2021-2022.



## **Building inclusive environments**

"The increased awareness of diversity and equity issues is translating into action in particle physics collaborations and university physics departments. Large collaborations have Codes of Conduct and strive for diversity when assigning management positions. University physics departments increasingly consider diversity and inclusion a core value in teaching and research. Target of opportunity programs and improvements in candidate evaluation are making hiring and admissions more equitable, leading to increased diversity in faculty and students."

—Meenakshi Narain, Brown University



Particle physicists understand the importance of having a diverse research community and fostering a sense of belonging among its current and future members. We are actively working to improve the climate for groups historically underrepresented in physics. These long needed changes to address systemic inequities are taking place throughout the community and wherever physicists work, including laboratory and university settings.



SAGE-S Summer Camp, SLAC



## Community strategy to enable a diverse future

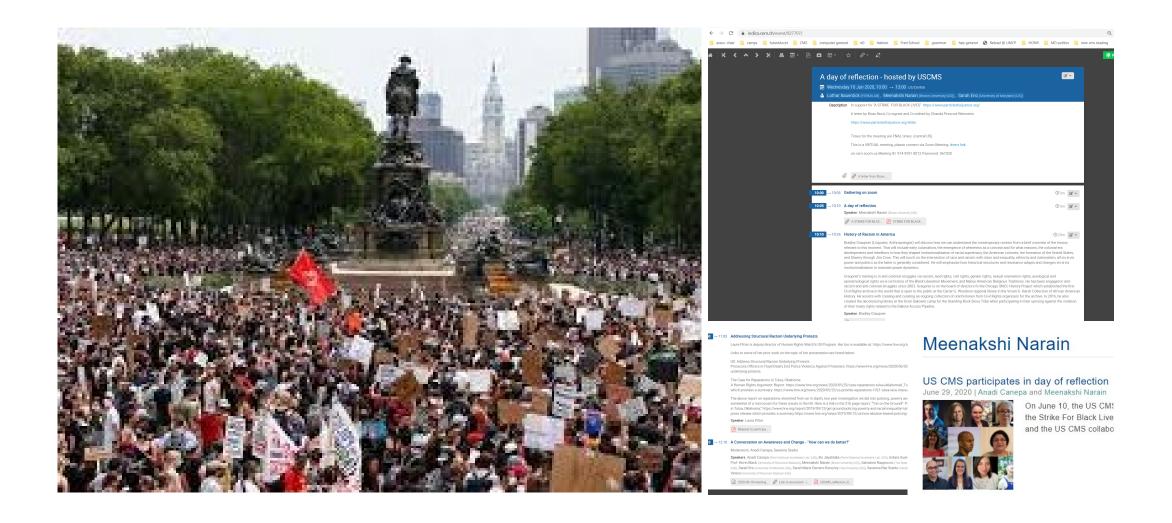
"What drives significant intellectual progress and breakthroughs is having a diverse pool of talents who bring in distinctive skills and perspectives. Through the Snowmass decadal planning process, the U.S. Particle Physics community is strategizing ways to ensure equal access to education and career opportunities for historically marginalized communities."

—Mu-Chun Chen (she/her/hers)

University of California. Irvine

# Step up whenever needed

# A day of reflection: 10 June 2020

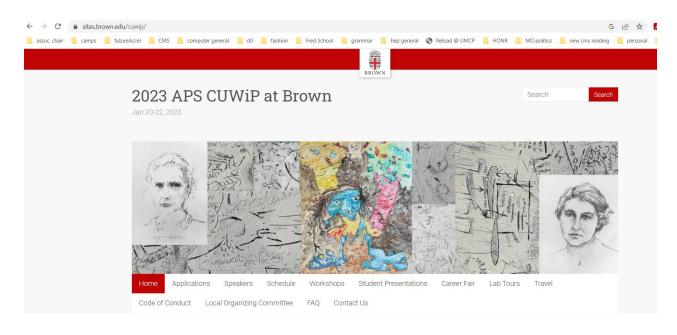




# SCIENCE FARM WaterFire Providence September 28, 2019 4-10 PM RISD Auditorium Inspiring lectures (ages 10 and up- get your free ticket via EventBrite for priority seating)

Big Bang Science Fair

# 2023 APS CUWiP at Brown



## APS Conference for Undergraduate Women in Physics at Brown University



# Continuing reach: 23 Jan 2023

# What if we treated everyone with respect

Respect was not always been the norm in our field. What if we insist on it?

# Code of conduct



### CMS Code of Conduct

Approved by the CMS Collaboration Board 12-April 2019

The CMS collaboration consists of members with varied national origin, ethnic background, race, gender identity, sexual orientation, gender, age, physical ability, and religion. As a community, we are committed to being positive and inclusive in all regards.

We follow the <u>CERN Code of Conduct</u>. Members of CMS must maintain a professional environment in an atmosphere of tolerance and mutual respect and abstain from all forms of harassment, abuse, intimidation, bullying, and mistreatment of any kind. This includes, but is not limited to, intimidation, sexual or crude jokes or comments, offensive images, and unwelcome physical conduct. Members must keep in mind that behavior and language deemed acceptable to one person may not be to another.

We commit to helping our community adhere to this code of conduct and speak up when we see possible violations of it. We strive to treat those outside of CMS as we would members of our own community. In the event that the letter or the spirit of this code has been violated, appropriate action will be taken, up to and including procedures specified in Annex A3.2 of the CMS Constitution.



# Celebrating everyone's accomplishments, further everyone's career

- USCMS awards committee
- USCMS mentoring
- USCMS reviewers for Young Faculty proposals to CAREER etc

# **USCMS** mentoring

Working with mentoring chairs Julie Hogan, Christine McLean and volunteers

- came up with the idea as one of the founding charges of the USCMS DEI committee
- organized the team in charge of the program
- worked to advertise/highlight the program through emails and talks, especially at the USCMS meetings, essential to the large participation in the program.
- gave lots of help with recruiting by supplying lists of US-CMS members at different job levels to tailor the recruitment emails, was very dedicated to the idea of having as much participation as possible.
- directed the committee toward a "blinded" or random method of making the connections, rather than applying too much personal knowledge to match people
- served as a mentor in the program

## What is mentoring?

- "a brain to pick, an ear to listen, and a push in the right direction"
- ▶ A unique partnership that fosters growth
- An intentional relationship, not just a casual friendship

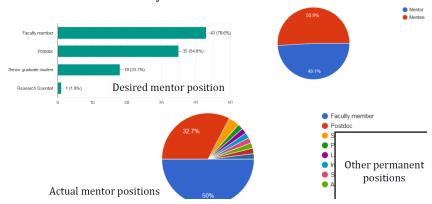
## > 2020 program:

- ▶ Sign-ups January March
- Pairing via a randomized script
- ► Kick-off meeting in March with ~50 mentor/mentee pairs
- ▶ ~Monthly connection reminders
- ▶ We've now reached the end of Year 1!

## 2020 Participants



- ▶ Slightly more mentees than mentors 2 mentors doubled up
- Mentorship works between all levels thanks to the postdocs who served both roles this year!



From Julie Hogan's talk at USCMS meeting

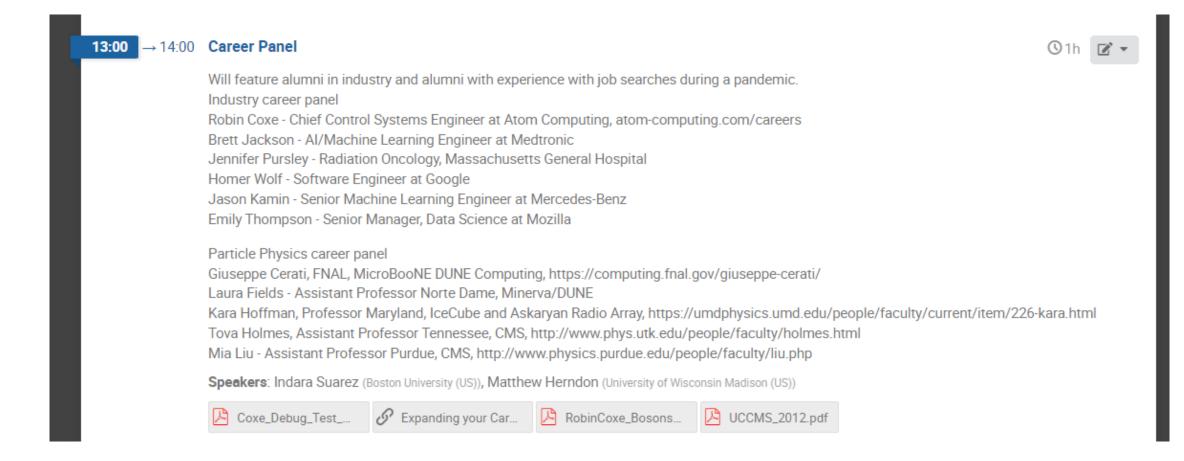
# As part of TFDI

Meenakhshi, as US CMS Chair, indefatigably collected input for the TFDI from the large constituency. She also coorganised several town hall meetings, in particular those for the US community. You can find the schedule and recordings of those meetings in the CMS CB indico category https://indico.cern.ch/category/1 74/, in the timeframe June 2021. You can also find presentations at other CB meetings there, such as the one at the Special CB on 9 July 2021.

## Management training

- CMS Diversity Office and Career Office jointly developing training for CMS management roles
- Focused at "Level-2 and Level-3" positions (conveners and sub-group conveners)
- Recognition that preparation for these roles is otherwise uneven
- Focus on effective communication, conflict resolution, meeting management, and D&I issues
- Will be sharing experiences of this with other CERN experiments and the CERN D&I Roundtable
- Given multiple times a year to engage all leaders.

## **USCMS 2022**



# And just helping others

during the pandemic she had organize a fundraiser/collection for respirators and medical help in India and at the funeral people mentioned her efforts (ongoing I think) with people on the ground in her home state in India

## **Helping Danila Tlisov's family**





No one of us can replace Meenakshi, but maybe if we all work together, we can make her dream a reality

INE: What core values do you try to live by?

MN:I value building respectful and inclusive communities, in which our passions and vision define us despite our imperfections.

https://indianewengland.com/meenakshi-narain-a-physicist-working-with-particle-accelerators-and-helping-discover-the-higgs-boson/



The DPF of the APS is renaming their mentoring award in her honor, in recognition of her seminal contributions in this area.