

# **November 2019 STEM Conferences**

**for high school students and parents/mentors**

**Minerba Betancourt**

**Leo Aliaga**

**Aria Soha**

**(for the Hispanic/Latino Forum)**

**Fermilab Community Advisory Board Meeting**  
**November 21, 2019**

# Announcements



**WONDERFUL WOMEN IN STEM**  
**CONFERENCE AT FERMILAB**  
for high school students & parents/mentors **11-2-19**

Join us to share experiences with **Women in STEM** from Fermilab, where we bring the world together to solve the mysteries of matter, energy, space and time.

Experts in STEM fields will guide you through hands-on activities, answer questions, and explain everything that you want to know about our work at Fermilab.


Choose from the following activity tracks:

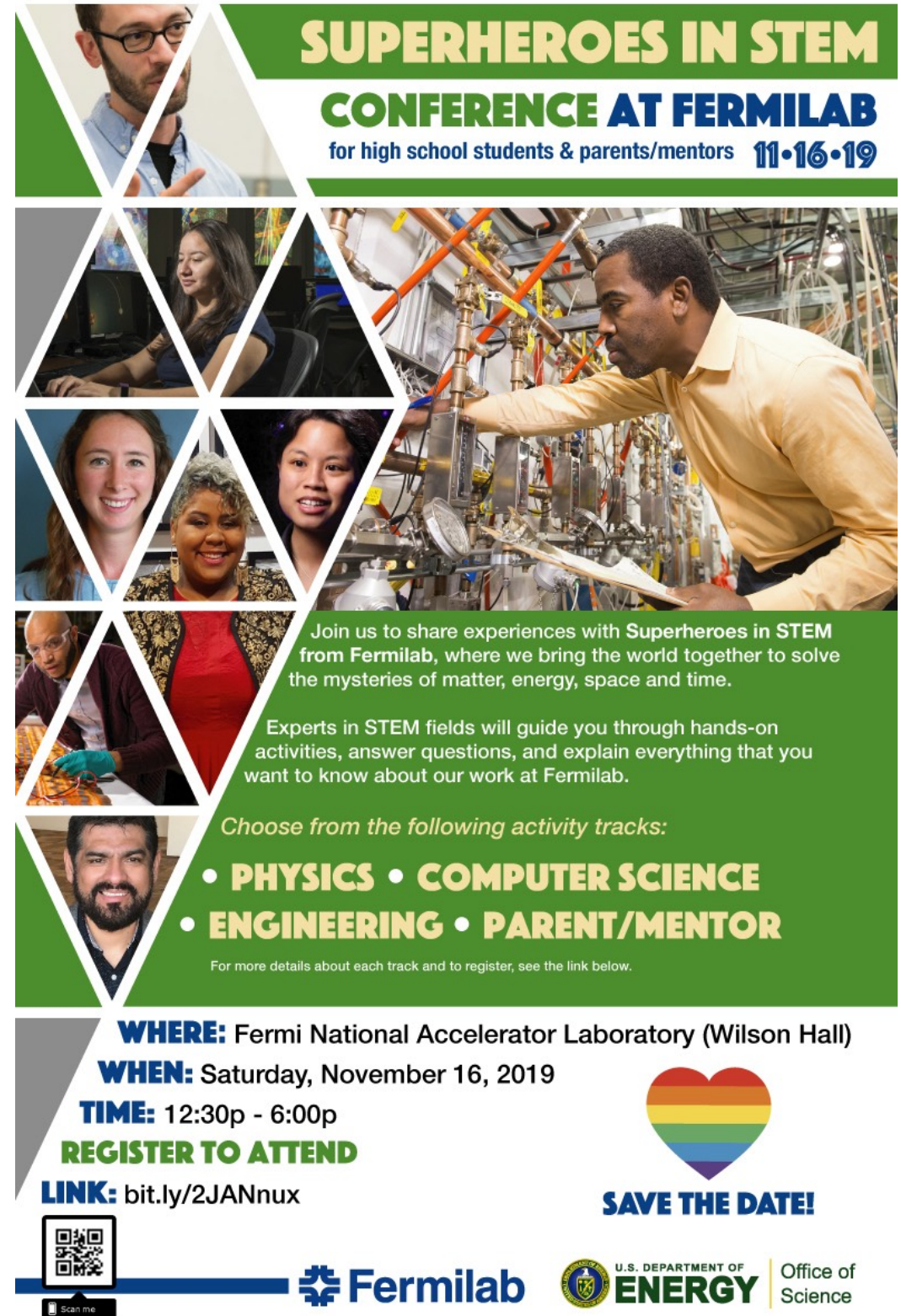
- **PHYSICS • COMPUTER SCIENCE**
- **ENGINEERING • PARENT/MENTOR**

For more details about each track and to register, see the link below.

**WHERE:** Fermi National Accelerator Laboratory (Wilson Hall)  
**WHEN:** Saturday, November 2, 2019  
**TIME:** 12:30p - 6:00p  
**REGISTER TO ATTEND**  
**LINK:** [bit.ly/2WpoxUy](https://bit.ly/2WpoxUy)

**SAVE THE DATE!**

  **Office of Science**



**SUPERHEROES IN STEM**  
**CONFERENCE AT FERMILAB**  
for high school students & parents/mentors **11-16-19**

Join us to share experiences with **Superheroes in STEM** from Fermilab, where we bring the world together to solve the mysteries of matter, energy, space and time.

Experts in STEM fields will guide you through hands-on activities, answer questions, and explain everything that you want to know about our work at Fermilab.



Choose from the following activity tracks:

- **PHYSICS • COMPUTER SCIENCE**
- **ENGINEERING • PARENT/MENTOR**

For more details about each track and to register, see the link below.

**WHERE:** Fermi National Accelerator Laboratory (Wilson Hall)  
**WHEN:** Saturday, November 16, 2019  
**TIME:** 12:30p - 6:00p  
**REGISTER TO ATTEND**  
**LINK:** [bit.ly/2JANnux](https://bit.ly/2JANnux)

**SAVE THE DATE!**

  **Office of Science**

<https://indico.fnal.gov/event/21183>

<https://indico.fnal.gov/event/21176/>



# Objetives

- Organized by the Hispanic/Latino Forum group, which is part of the diversity and inclusion program at Fermilab (LRG).

***The goal of the event is to encourage the participation, retention and advancement of students in science, technology, engineering and math.***

- Second **Wonderful Women in STEM** Conference for high school girls on Nov. 2
  - 40 students for Wonderful Woman in STEM
- First **Superheroes in STEM** Conference open to all high school students on Nov. 16.
  - 65 students for Superheroes in STEM

***More than 40 volunteers: Fermilab engineers, scientists, administrative, students and postdocs.***

# Agenda

Track Activities

Time	Wonderful Woman	Superheroes	Room
Welcome	Hema Ramamoorthi and rep. Lauren Underwood	Katherine Gregory	One West (10 min)
Keynote Speaker	Jessica Esquivel	Bo Jayatilaka	One West (30 min)
Cryogenic Demonstration	Jamie Santucci Tanaz Mohayai	Jamie Santucci Oscar Moreno	One West (40 min)
Picture/break			Atrium (10 min)
Mechanical Engineer	Aria Soha	Aria Soha	Ground floor
Electrical Engineer	Miguelangel Marchan	Miguelangel Marchan	Comitium
T is for Tech	Jenny Teheran	Marco Mambelli	One West
Physics	Mehreen Sultana	Gonzalo Diaz and Andrew Oliver	Physics
Panel	Farah Fahim, Lauren Hsu, Tanya Levshina, Carrie Lynne, Fernanda Psihas and Tammy Walton.	Maurice Ball, Davide Braga, Lorena Lobato, Peter Shanahan, Jason St. John and Jessica Turner.	One West (60 min)

(90 min)

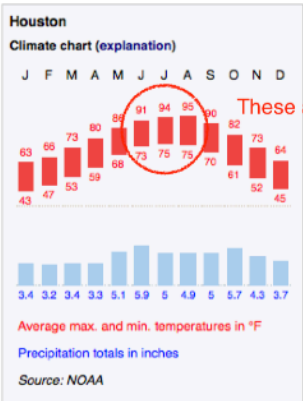
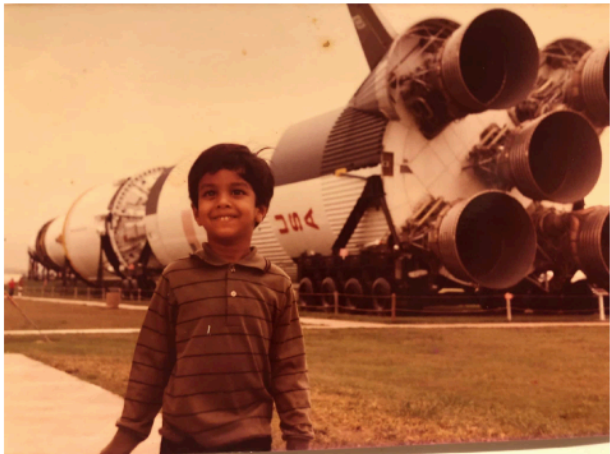
***Parents received a tour through the lab installations while students were on the track activities .***

# Keynote speaker



## How did I get here?

- From **Houston, Texas**
  - Child of immigrants from Sri Lanka



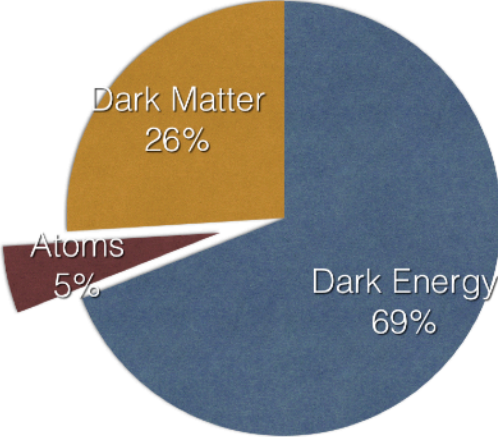
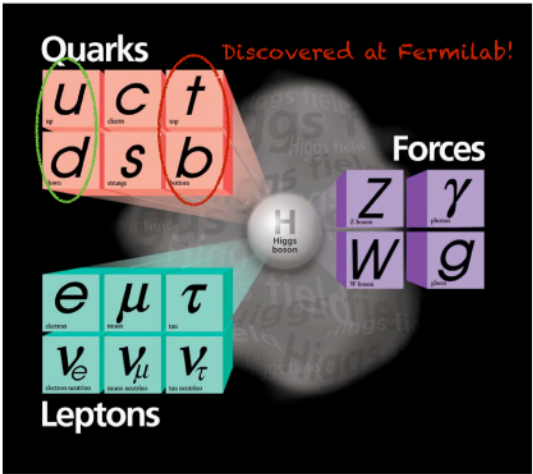
These are averages!



## Getting into particle physics

These make up  
protons and neutrons

Categorizing matter: the standard model of particle physics  
everything that we know of!





# Cryogenic demonstration



# Track activities



Experts in STEM fields will guide you through hands-on activities, answer questions, and explain everything that you want to know about our work at Fermilab.

Choose from the following activity tracks:

**T is for Tech:** Join us in a scavenger's hunt through Wilson Hall discovering new and fun technologies and their applications. You'll team up to solve puzzles, riddles and challenges while learning about exciting technologies such as virtual and augmented reality, computational thinking concepts and more!

**Mechanical Engineering:** In this session, you will explore all the ways in which mass and motion are linked. You'll work in groups to build a small car powered by a 5-lb weight. Test your car, race it against others, and find ways to make improvements. At the end of the session, one car will be named the Fastest at Fermilab!

**Electrical Engineering:** Ever wonder how a radio works? Build one yourself! Students will work in groups to pull electro-magnetic waves right out of the air! Then see what else a circuit can do...

**Physics: Join us as we uncover the secrets of the universe!** Neutrinos are the most abundant particle in the universe, and yet one of the most mysterious. They may hold the key to understanding why we're here in this universe. In this session, we'll have a hands-on experience demonstrating how scientists study neutrinos and use data from neutrino experiments to deduce the properties of neutrinos and the matter with which they interact.



# Track activities





# Panel



**Each panelist talked about their motivation for entering their fields. They also shared the challenges and rewarding experiences in the daily job as well as in their careers throughout their time working at Fermilab.**



# General Picture

## *Superheroes in STEM*



## *Wonderful Women in STEM*





# Reactions from students

*"The opportunity for a hands on practice/experience."*

*"I liked building a cart."*

*"I liked how we got a little quest on computer science and how we got codes to get different stuff."*

*"I liked how the people were from different nationalities and in different categories."*

*"I really liked building a speaker but cryogenic was very cool as well."*

*"Talking and asking questions to the Grad students."*

*"I liked learning about neutrinos and learning how to read the tracks to see what everything means."*

*"Learning about the different internships, carriers and opportunities in STEM and @ Fermilab. Learning why some of the presenters are here."*

*"The raccoons story."*

*"The concepts explained at the Cryogenic experiment."*

*"Meeting the electrical engineers and physicists."*

*"Designing."*

*"It was very fun."*

*"The cryogenic demonstration was the most amazing thing I saw at the conference."*

*"Scavenger Hunt."*

*"The individual track experience."*

*"Hands on work."*