

# FOCUSING ON THE FUTURE: PHYSICS

With Prof. Joshua Erlich  
William & Mary

# ABOUT ME

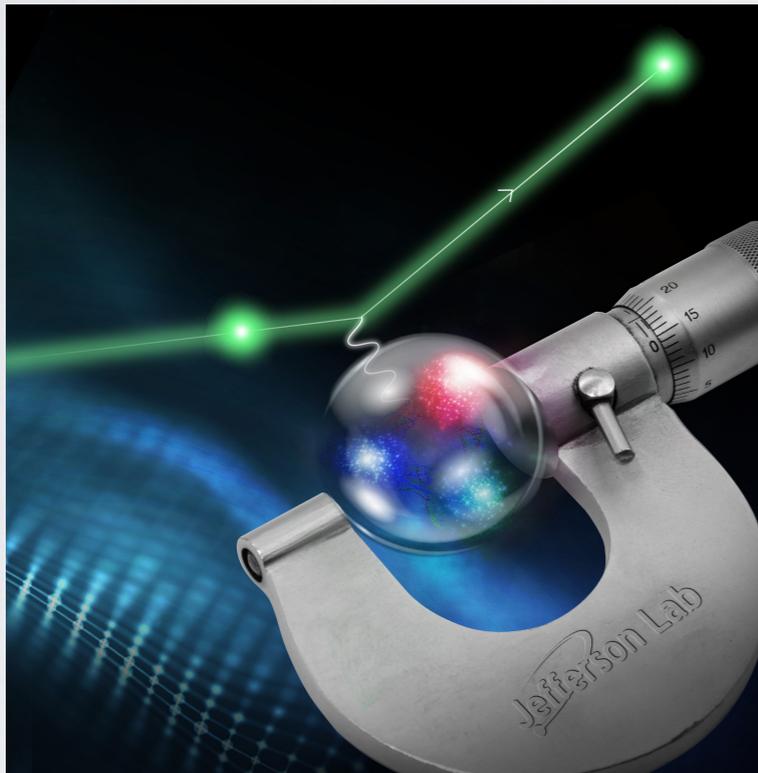


- Graduated from M.I.T. (S.B. '94, PhD '99)
- Los Alamos National Laboratory
- University of Washington, Seattle
- 2005-Present Professor at William & Mary

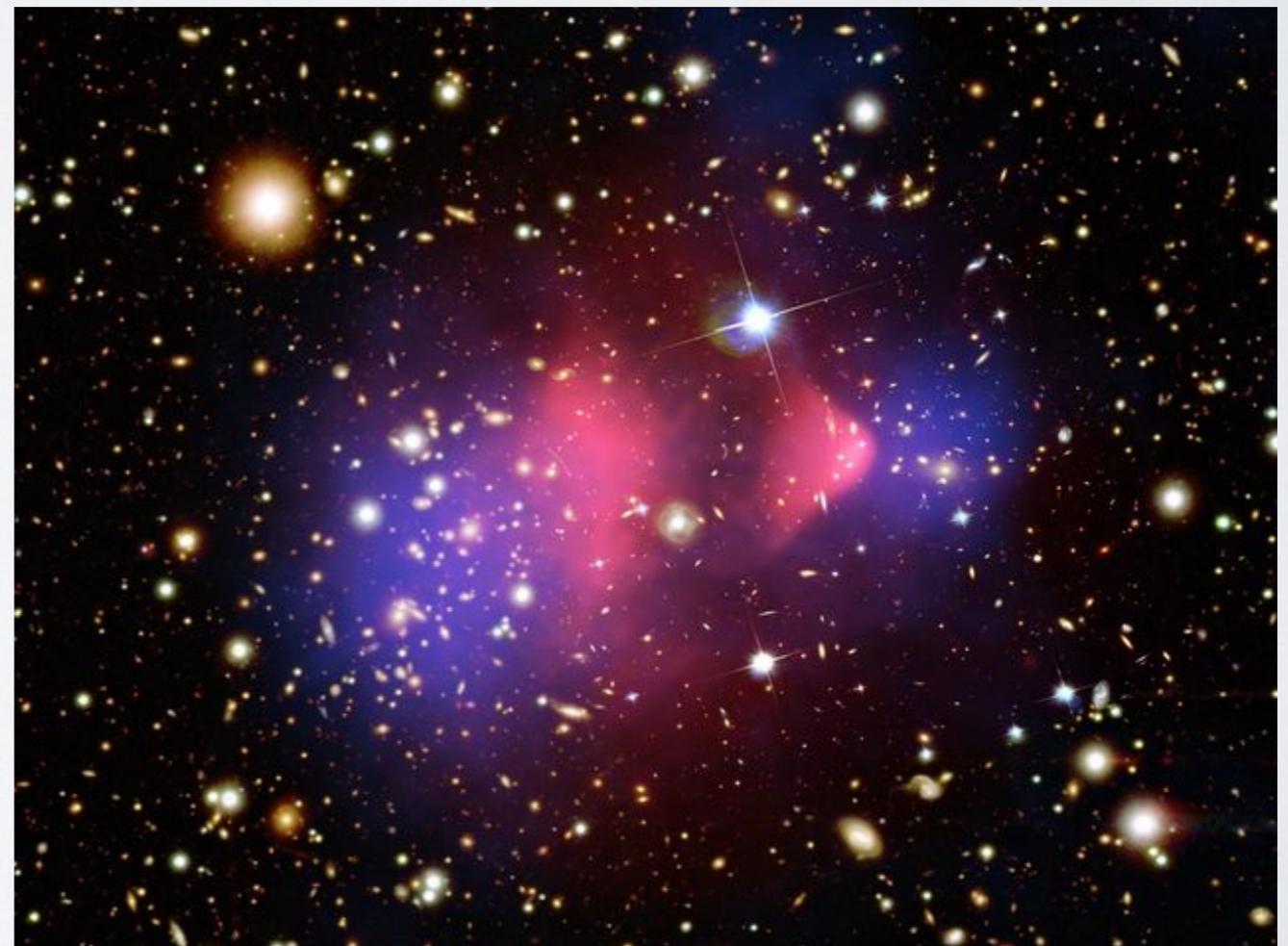
# A Few Fun Demos

# WHAT IS PHYSICS?

**The study of matter and its interactions, from the smallest things to the whole universe.**

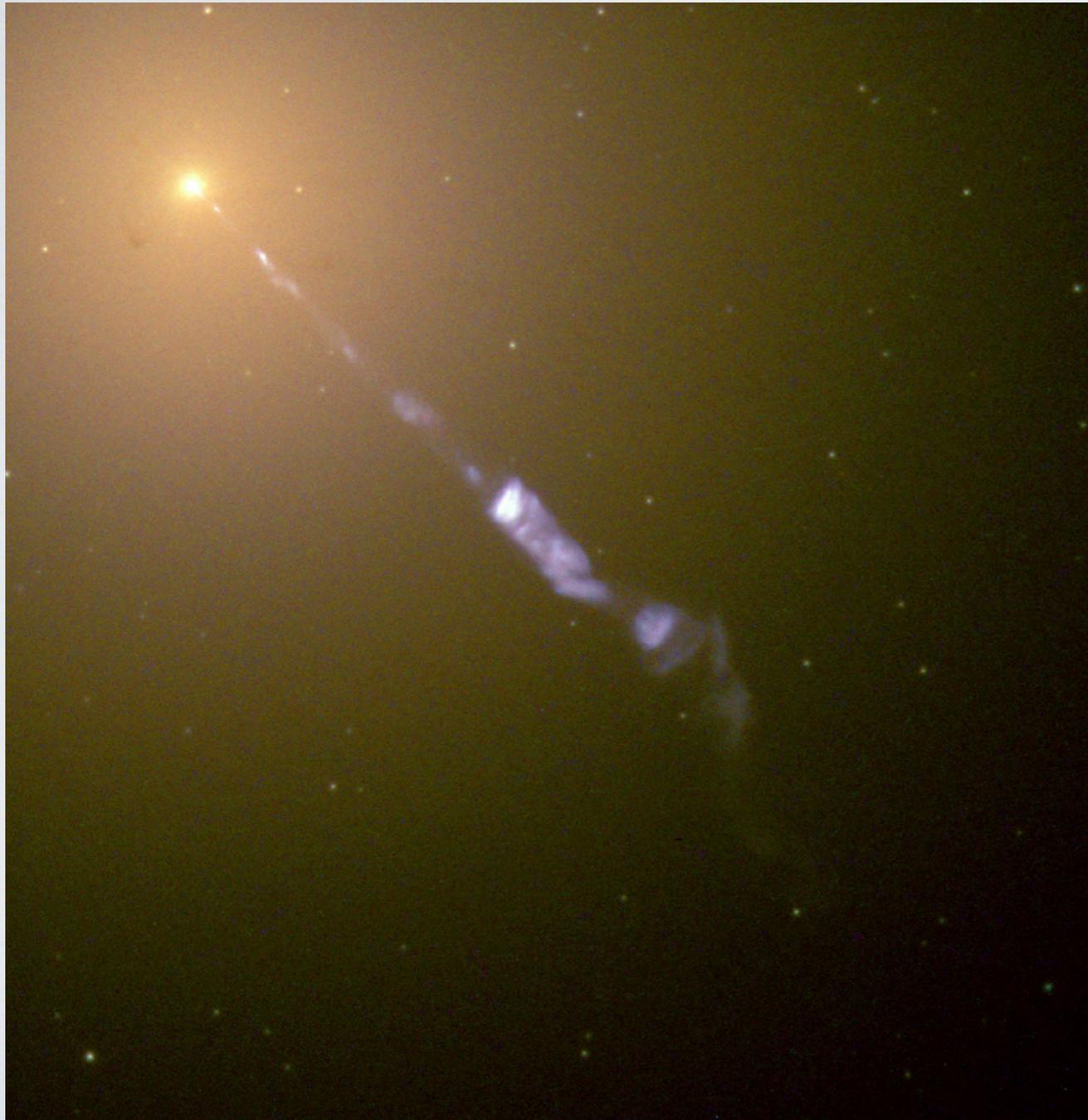


Credit: JLab



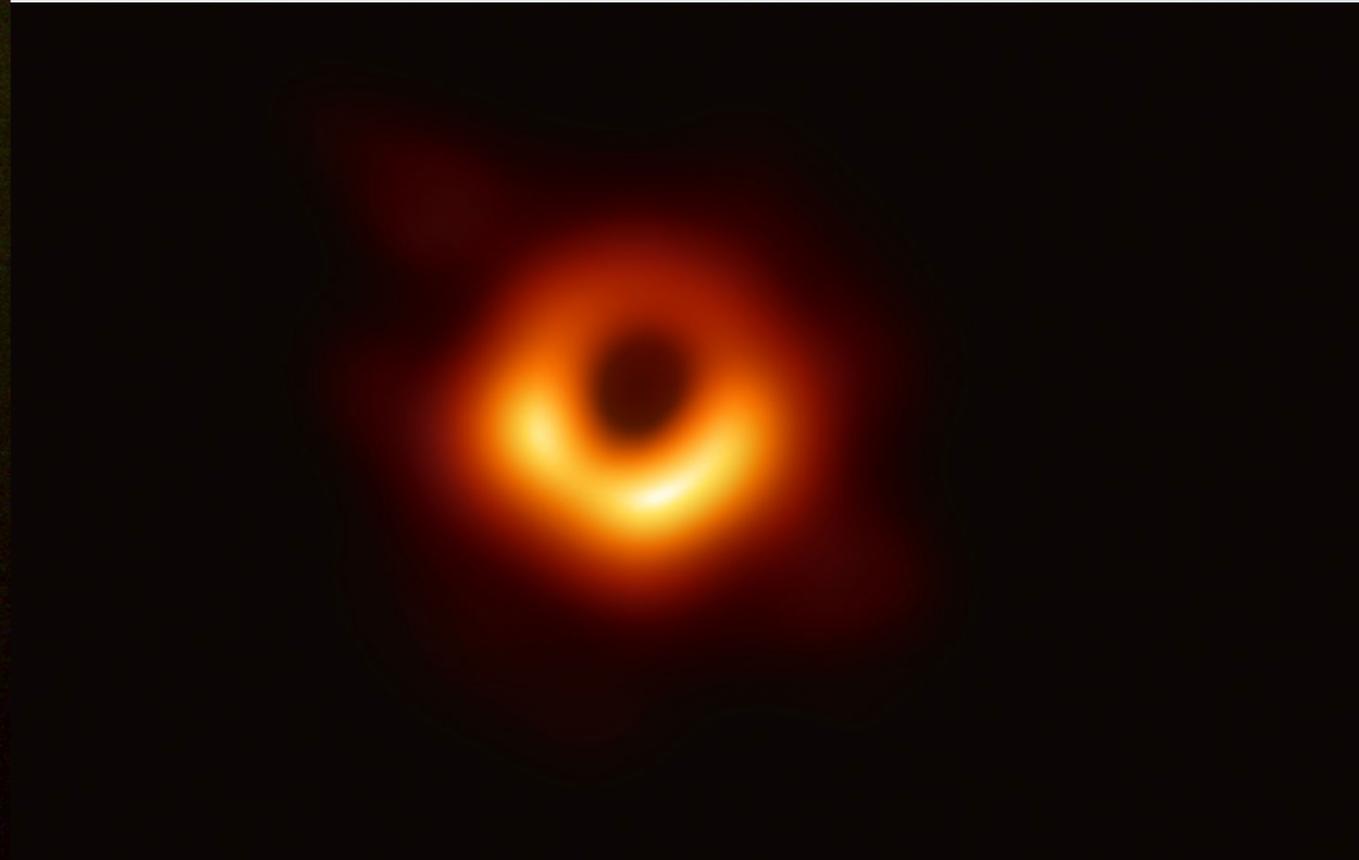
Credit: NASA

# SOME OF THE MOST EXCITING RECENT DISCOVERIES



Credit: Hubble Space Telescope

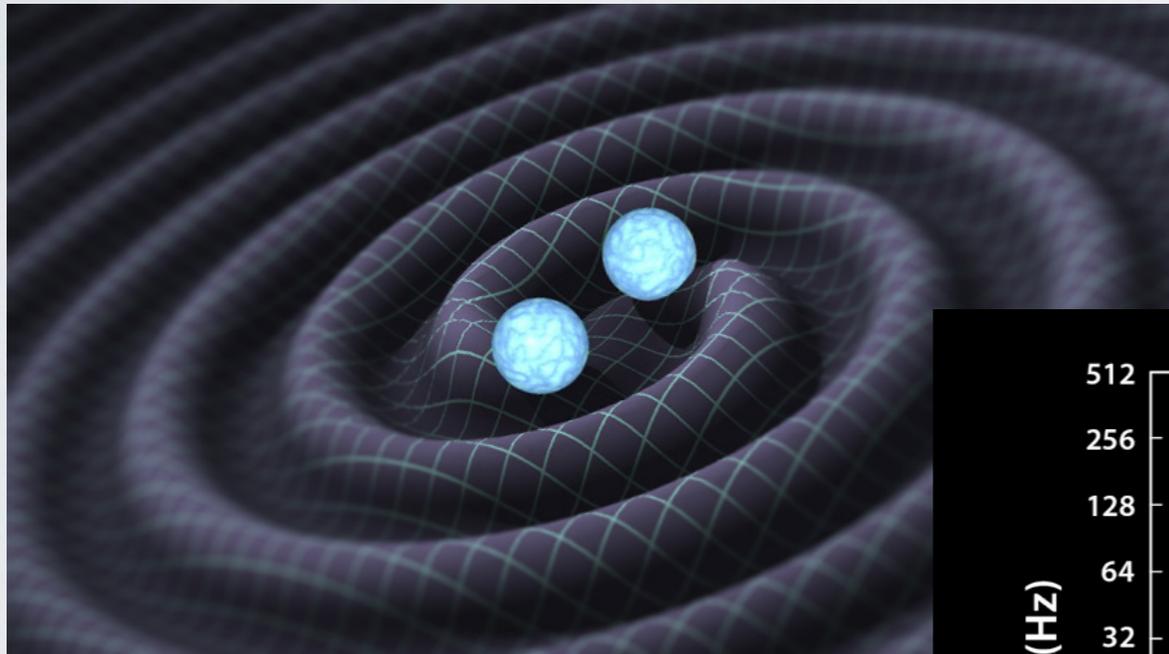
Black hole in M87  
(April, 2019)



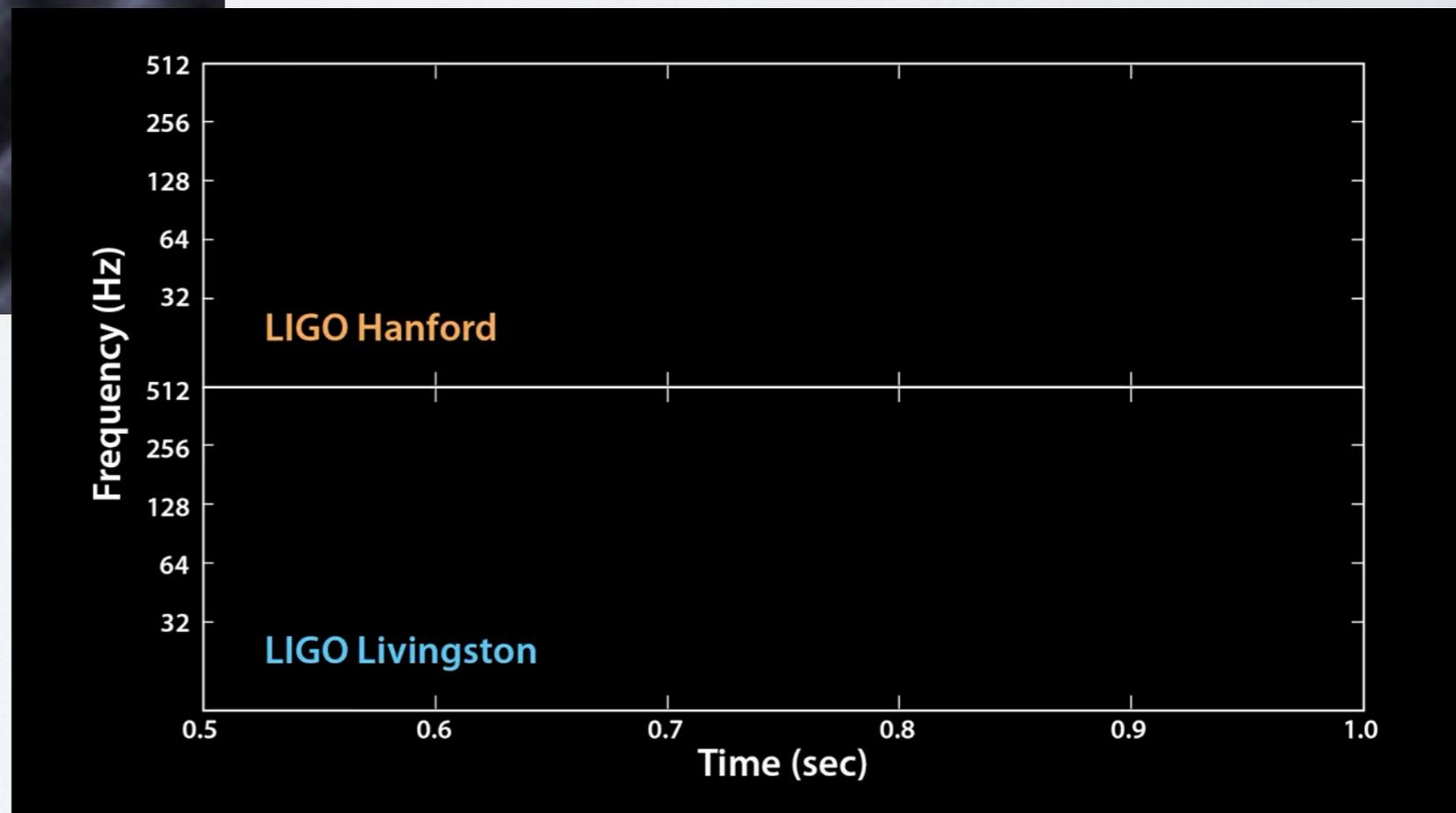
Credit: Event Horizon Telescope

# SOME OF THE MOST EXCITING RECENT DISCOVERIES

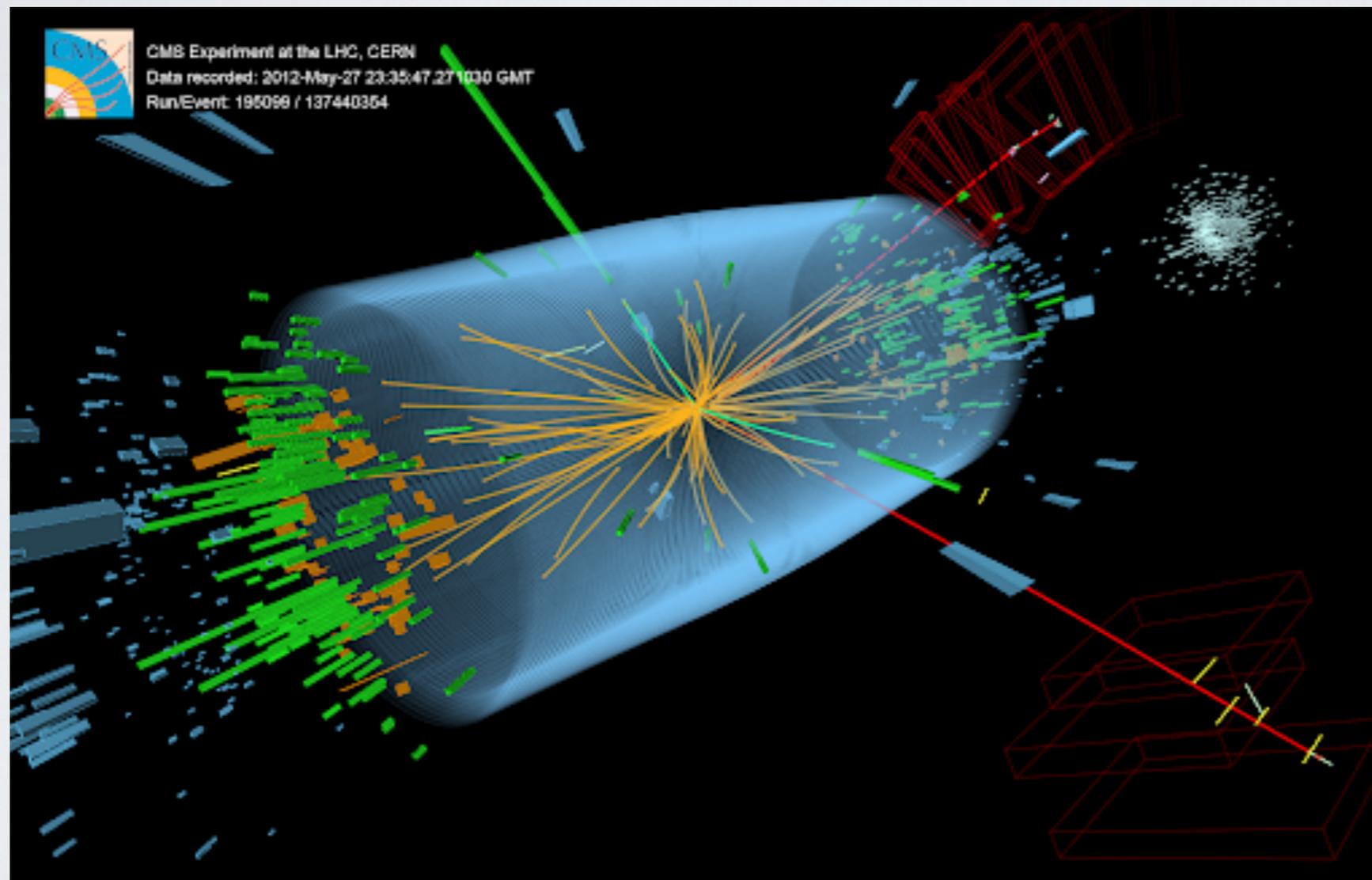
## Gravitational Waves (Sept, 2015)



Credit: LIGO



# SOME OF THE MOST EXCITING RECENT DISCOVERIES



Higgs Boson  
(July, 2012)

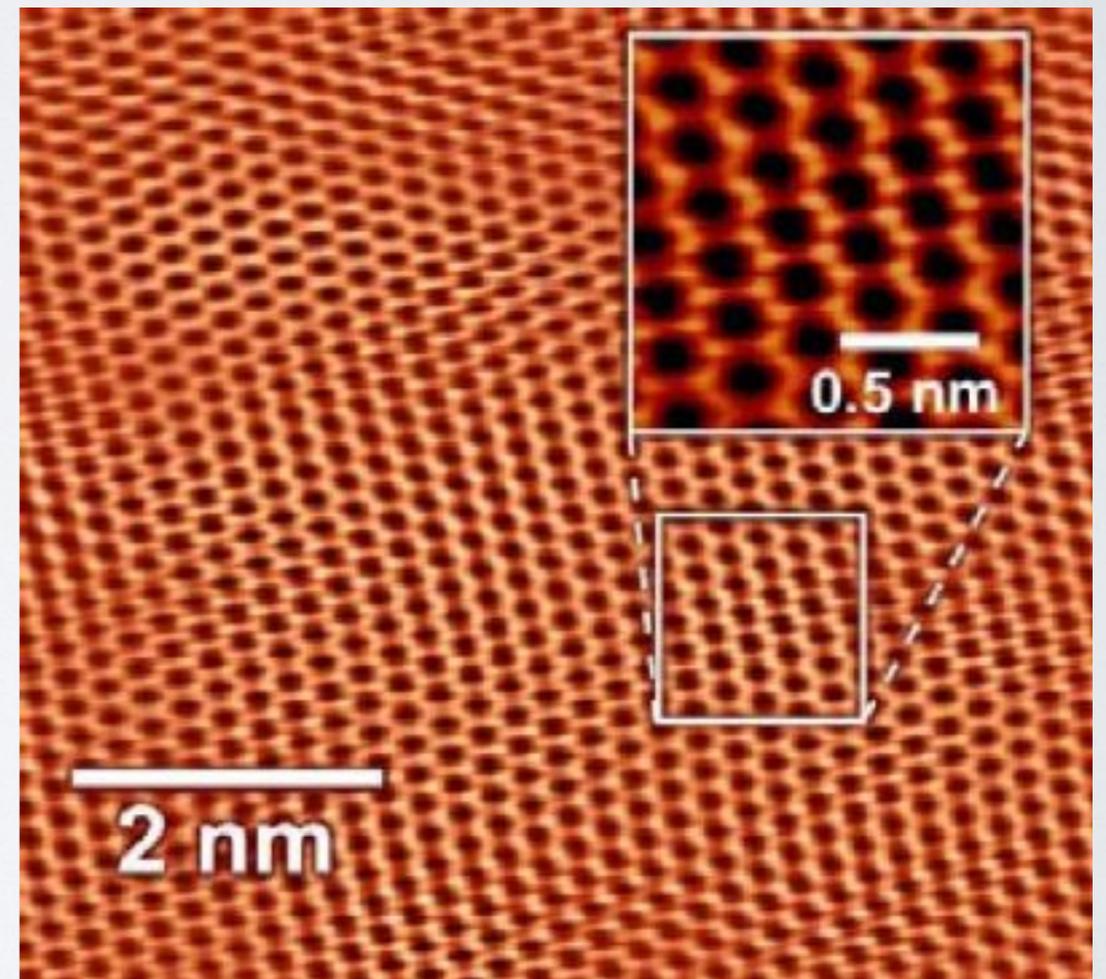
Credit: CERN

# SOME OF THE MOST EXCITING RECENT DISCOVERIES

Graphene  
(2004)



Credit: Fast Company



Credit: Hannes Schniepp, W&M

# WHAT IS PHYSICS GOOD FOR?



GPS



Proton therapy



Technology



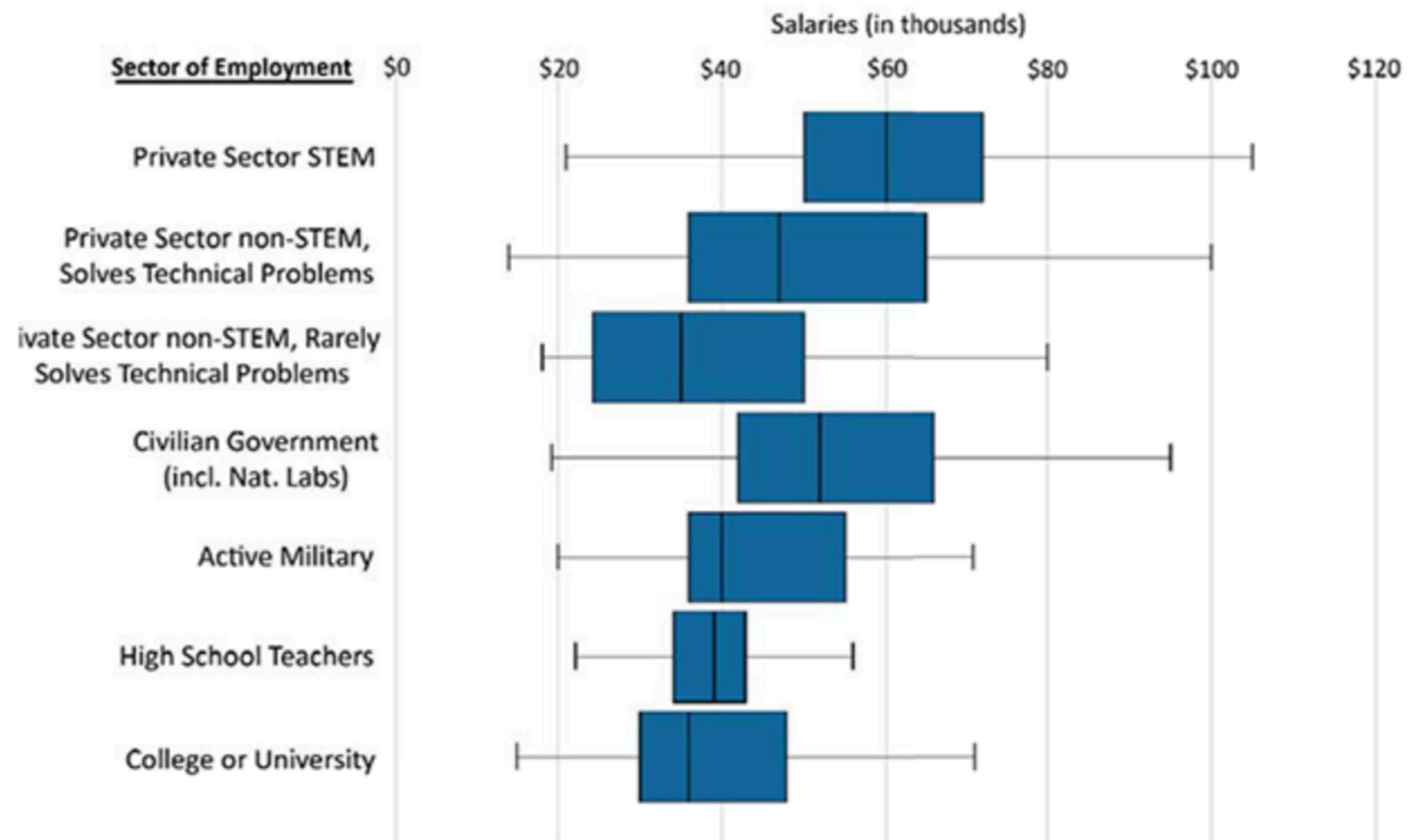
Nuclear Power

# CAREERS IN PHYSICS

## Typical Starting Salaries of Physics Bachelors

Classes of 2017 and 2018

Starting Salaries for New Physics Bachelors, Classes of 2017 & 2018 Combined



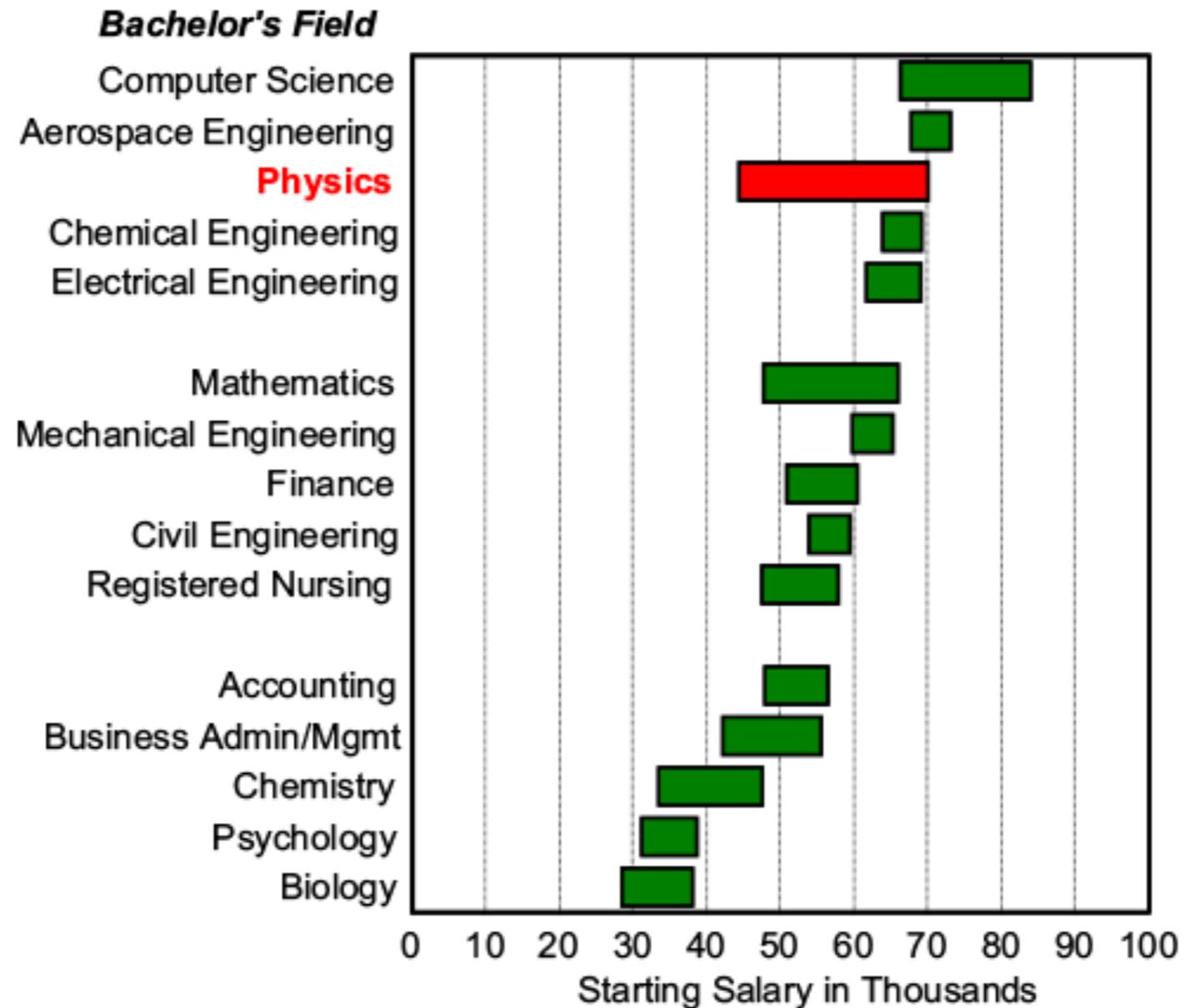
Credit: AIP Statistical Research Center, *Focus on Physics Bachelor's Initial Employment*

Credit: American Institute of Physics

# CAREERS IN PHYSICS

## What's a Bachelor's Degree Worth?

Typical Salaries for Bachelor's Degree Recipients, Class of 2015



Credit: American Physical Society

# MORE INFORMATION ABOUT PHYSICS CAREERS

🔒 [aps.org/careers/physicists/profiles/index.cfm](https://aps.org/careers/physicists/profiles/index.cfm)

▪ Undergraduate Students

▪ **Physicists Profiles**

▪ Job Prospects for Physicists

Career Guidance

Tools for Career Advisors

Statistical Data

Spectrum Playing Cards



Learn about faculty and lecturers teaching and doing research at universities and colleges

**Academia**



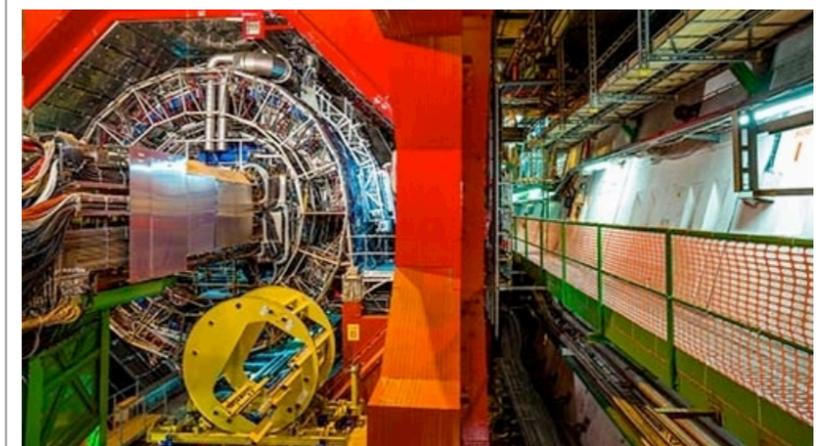
See how a physicist can give back to the community in a government or public service role

**Public Service**



Explore the career paths of physicists in industry jobs working in R&D, consulting and more

**Private Sector**



Gain some insight into the role of scientists working at national labs

**National Lab**

# Preparing for a Career in Physics

## Get Excited About Physics!

Physics is the study of how the universe works—and Physics Central is a great gateway to learning more about it, with lots of cool experiments, pictures, podcasts, and much more!

► [Explore Physics Central](#)

## Take Math

Enroll in all the prealgebra, algebra, advanced algebra, and precalculus courses your school has to offer. A good, strong background in math will help you tremendously in a physics career.

## Read Physics

Read books by well-recognized physicists such as:

- *The Elegant Universe*, by Brian Greene
- *A Brief History of Time*, by Stephen Hawking
- *Flying Circus of Physics*, by Jearl Walker

Reading these books and others about the lives of these physicists will spark your interest in the fascinating world of physics

## Do the Science

Physics can be a lot of fun. Get involved in science fairs and other extra-curricular science activities. Expose yourself to as much science as possible. Do your own experiments. You'll discover the areas of physics that really excite you.

## Find a Mentor

Find someone you can talk to about physics and what interests you. Mentors can answer questions about your experiments as well as career decisions. Talk to a teacher, professor, or graduate student. Start at your school, but also check the physics departments at local colleges and universities.