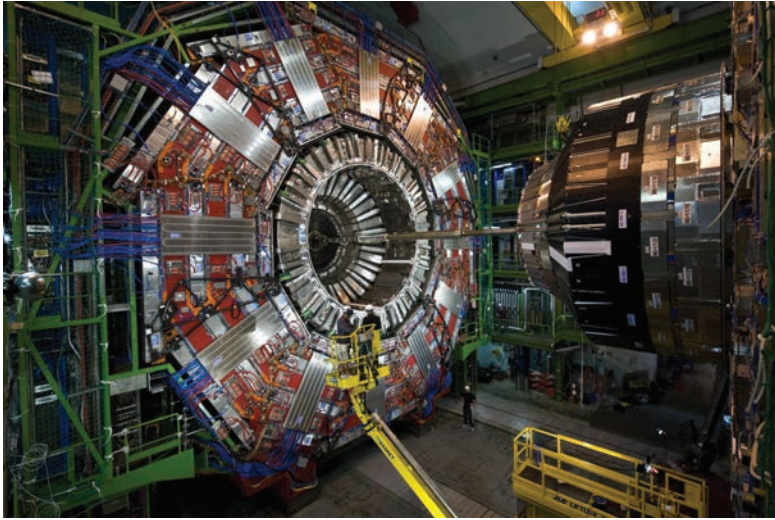


# Particle Physics Propels U.S. Progress

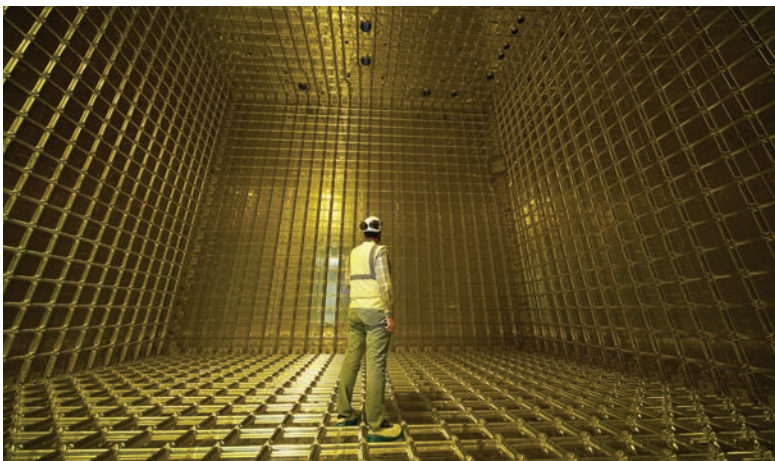
Particle physicists endeavor to **understand matter and energy, space and time** — from the  **tiniest particles**  to the **entire cosmos**. Investment in fundamental research yields substantial returns across a wide range of sectors.



## Generating a Competitive Workforce

Particle physics inspires students, generates technologically savvy STEM leaders, and strives to foster inclusive collaboration. These priorities drive innovation, advance other fields, and benefit broader society:

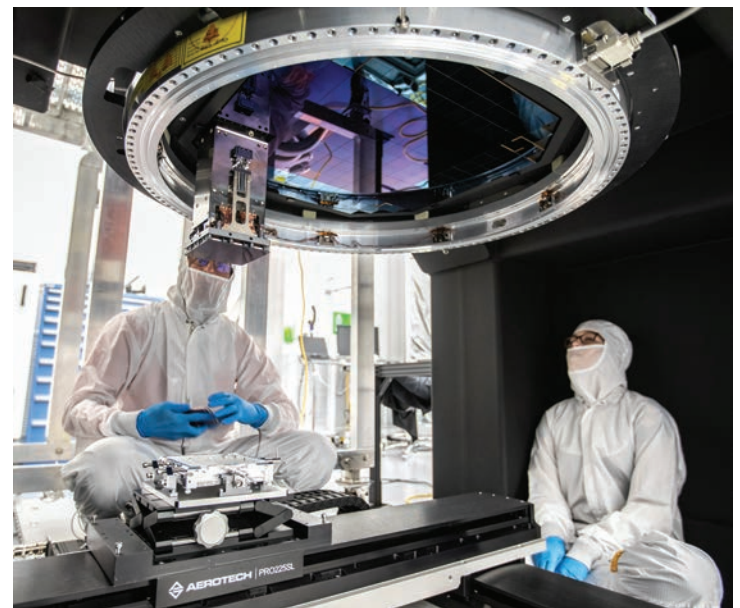
- ▶ **Medicine:** Improve diagnostics and treatment of disease
- ▶ **Security:** Enhance cargo screening and nuclear monitoring
- ▶ **Computing:** Advance AI, quantum computing, and big data
- ▶ **Industry:** Accelerate manufacturing and microelectronics



## Leading the World to New Discoveries

America's particle physics research program enables scientists across the U.S. to champion global collaboration, spearhead the next generation of discoveries, and pursue answers to some of humankind's deepest questions:

- ▶ How did the **universe evolve** into its present form?
- ▶ What are the **fundamental forces** of nature?
- ▶ What are the **ultimate building blocks of matter**?



## Building Toward Breakthroughs

The U.S. particle physics community's vision harnesses five intertwined science drivers that demonstrate great potential for discovery: the origin of mass via the **Higgs particle**, the special role of **neutrinos** in the universe, the physics behind **dark matter**, the nature of **dark energy**, and the search for **new fundamental phenomena**.

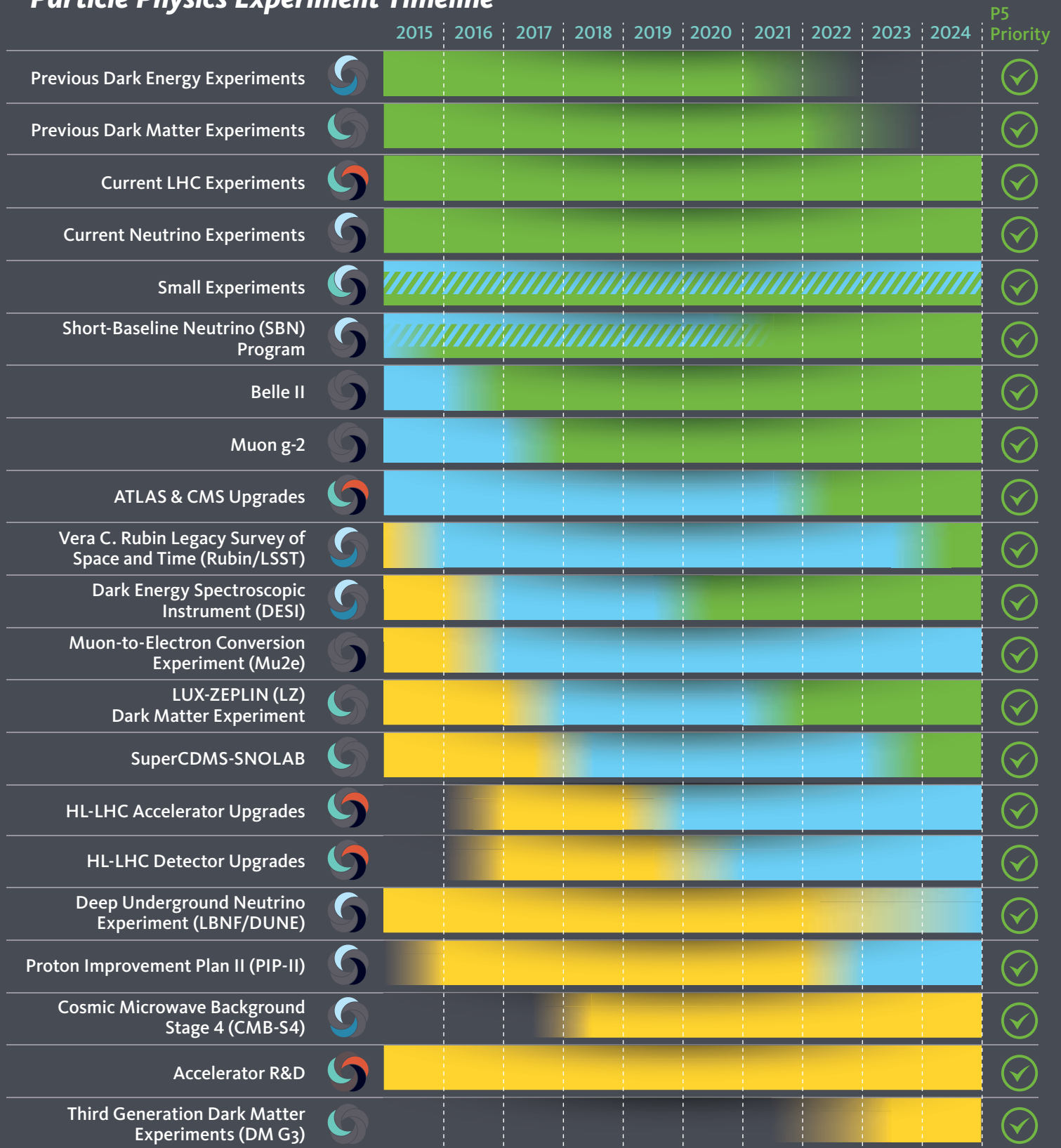


usparticlephysics.org

Prepared by:



# Particle Physics Experiment Timeline



## The science drivers from the 2014 Particle Physics Project Prioritization Panel (P5)



Use the Higgs Boson as a tool for discovery



Pursue physics associated with neutrino mass



Identify the new physics of dark matter



Understand dark energy and inflation



Explore the unknown

● Operation & Analysis

● Fabrication/Construction

● Conceptual & Technical Design