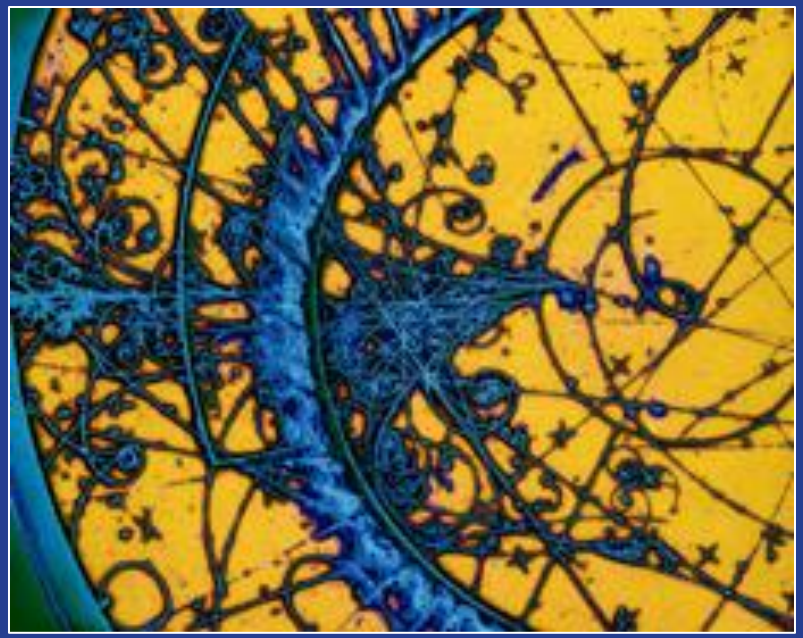
Particle Physics:

Discovery Science & Precision Measurements



U.S. DEPARTMENT OF ENERGY

Fermilab

CERN as Catalyst

News from CERN

Elusive Higgs

More massive SUSY particles

Speedy Neutrinos

Case in Point: Speedy Neutrinos

What's the context? People don't know.

They read the headlines.

"Tiny Neutrinos May Have Broken Cosmic Speed Limit" 9/22 New York Times

"Results from Cern show particles 'exceed speed of light'" 9/23 BBC

"Speedy neutrino has scientists questioning Einstein" 9/23 France 24

Case in Point: Speedy Neutrinos

What's the context? People don't know.

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"Scientists Skeptical About Speedy Neutrinos"
9/23 The Daily Beast

"Speedy neutrinos challenge physicists"
9/27 Nature News

"Speedy neutrino mystery likely solved, relativity safe after all"
10/14 DIVICE

The Dilemma

Discovery science is a journey.

People learn about it as an event—a headline, an article, a lecture, missing the ongoing story.

Can we shift the focus
. . . where we have a chance?

There's a Story to Tell

It is the dawn of a new age in particle physics. Physicists have incorporated decades of observations and results into the Standard Model, but

. . .

. . .

. . .

Follow along as physicists solve mysteries of the universe.

The Nature of the Journey

1. What we know
2. Questions we ask
3. Tools we build and use
4. How we know
5. What we learn

The Nature of the Journey

1. What we know √
2. Questions we ask
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2. Questions We Ask

Where to Start? What's the anchor?

"Speed of light" √

"Einstein" √

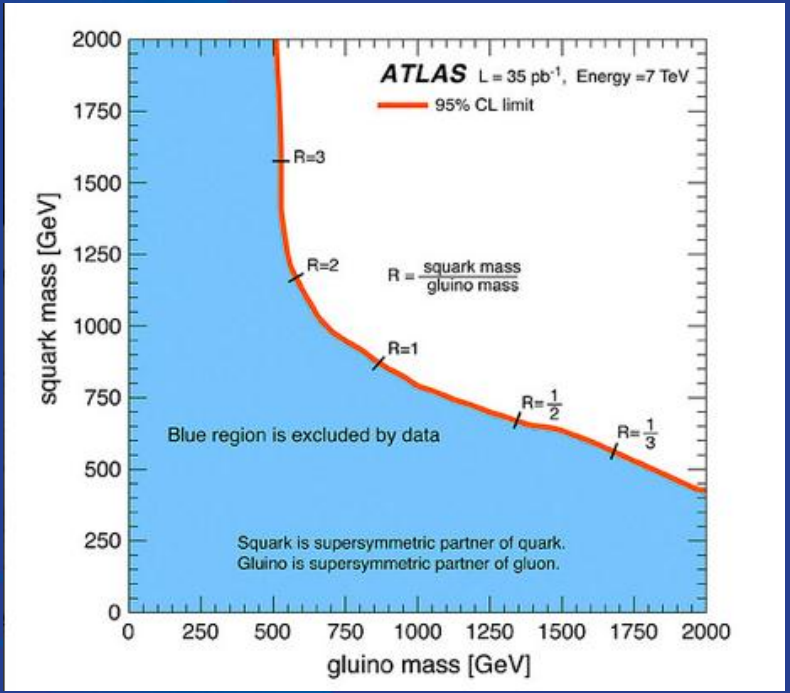
"Higgs" √

"Supersymmetry (SUSY)" ?

"Compositeness" X

. . . .

4. How We Know



Look for the unexpected. Check for:

- Statistical uncertainties
- Systematic uncertainties
- Verification from other experiments

What are Your Suggestions?

How do we tell our story of discovery?

. . . the journey?

. . . our questions?

. . . our data analysis?