

---

# NF02: Understanding Experimental Neutrino Anomalies

## Panel: Path to Resolution through Neutrino Experiments and Beyond



---

# Panelists

(Thank you!)

Carlos Arguelles (Harvard)\*

Milind Diwan (BNL)

Karsten Heeger (Yale)

Kevin Kelly (CERN)\*

Marilena Loverde (U. of Washington)

Alysia Marino (U. of Colorado, Boulder)

Walter Pettus (Indiana U.)\*

Dave Schmitz (U. of Chicago)

Kate Scholberg (Duke U.)

Josh Spitz (U. of Michigan)\*

Bob Svoboda (UC Davis)\*

Zahra Tabrizi (Northwestern U.)

Matt Toups (MIT)

Michael Wallbank (U. of Cincinnati)

*\*virtual participation*

---

---

Please enter additional questions/comments  
on the google doc, for the end of the session:

[https://docs.google.com/document/d/1-mehSIPOccxv7tBu--cUUlPnsDE2624hy\\_HS75XKgjo/edit?usp=sharing](https://docs.google.com/document/d/1-mehSIPOccxv7tBu--cUUlPnsDE2624hy_HS75XKgjo/edit?usp=sharing)

---

---

1. What can be learned early (~first 5 years) in the upcoming P5 period on the “flavor transformation”, “dark interactions”, or “conventional” fronts of anomaly interpretations?

- > Karsten Heeger
  - > Walter Pettus
  - > Dave Schmitz
  - > Josh Spitz
-

---

2. How would the lack of resolution of all or any of the anomalies affect our ability to pursue neutrino physics, e.g. with long-baseline experiments?

- > Kevin Kelly
  - > Dave Schmitz
  - > Michael Wallbank
-

---

3. What additional opportunities are available during the upcoming P5 period that could be game-changing?

What is the value in pursuing additional or new experiments regardless of or in view of what we find out early in the next P5 period?

- > Milind Diwan
  - > Kate Scholberg
  - > Josh Spitz
  - > Bob Svoboda
  - > Matt Toups
-

---

4. We talk about the potential of “multiple BSM effects” expressing themselves in the anomalies ( $3+1$ +decay,  $3+1$ +NSI, etc.); how might this overlap manifest itself in existing data sets?

- > Carlos Arguelles
  - > Marilena Loverde
  - > Zahra Tabrizi
-

---

5. Which unique information relevant to the anomalies can be extracted through synergies between experiment and theory, or low-energy and high-energy sectors, or astrophysics/cosmology?

- > Milind Diwan
  - > Marilena Loverde
  - > Zahra Tabrizi
-



---

## 6. What could DUNE Phase II teach us about the short-baseline anomalies?

- > Alysia Marino
  - > Bob Svoboda
-

---

7. Looking at the current landscape, what do you see as missing from the current/future NF02 program?

What do we need to do better at, or improve?

- > Carlos Arguelles
  - > Karsten Heeger
  - > Kevin Kelly
-

---

8. Looking beyond the next P5 period, what possible new facilities may be available that can enhance our ability to probe the anomalies beyond whatever we achieve in this P5 period.

- > Walter Pettus
  - > Kate Scholberg
  - > Matt Toups
  - > Michael Wallbank
-

---

**[Audience Questions]**

---