



U.S. DEPARTMENT OF  
**ENERGY**

OFFICE OF  
**SCIENCE**

# A Workshop on Fundamental Physics at the Intensity Frontier

**DPF Meeting  
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# Motivation

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- **Our goal is to develop a leadership program at the Intensity Frontier.**
  - It should have strength and breadth.
  - It should attract the best physicists from around the world to work with us.
- **P5 recommended LBNE, Mu2e, and NOvA as big initiatives for the Intensity Frontier**
- **HEP held a competitive review of g-2, US contribution to BELLE-II, and a US contribution to SuperB in Italy last year.**
- **What else should we do?**
  - Fermilab has held a series of workshops on Project X physics.
  - Are there other opportunities?

# Workshop

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- **The Office of High Energy Physics will sponsor a workshop on Intensity Frontier Physics.**
  - The Office of Nuclear Physics is helping to coordinate the workshop.
    - Experiments are being proposed for Jlab and they have supported research on electric dipole moment measurements.
  - We are discussing a possible role for NSF.
- **It will be held on Washington DC on November 30-December 2.**
- **The venue should be announced shortly.**

# Charge

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- Identify the physics opportunities at the Intensity Frontier
- explain what can potentially be learned from such experiments,
- determine which experiments can be done with current facilities and technology,
- as well as determine which experiments require new facilities or new technology to reach their full potential.
- produce a final document with the results of the workshop

**The workshop should be inclusive and open to as wide as possible representation from the entire field of particle physics, so that the best ideas can be identified and evaluated by a broad cross-section of the community.**

# Leadership

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- **Chairs:**

- Harry Weerts from Argonne National Laboratory
- Joanne Hewett from SLAC National Accelerator Laboratory

- **Working Group Conveners**

- An experimentalist with expertise in the area but not necessarily a proponent
- A theorist with expertise in the area
- A third individual from outside of the specific area to ask the questions that the rest of the community wants answered.
- More than ½ of the conveners have been recruited.

# Working Groups

Topic	Subtopic
<b>Heavy Quarks</b>	Rare Kaon decays B-factories (e+e-) LHCb
<b>Charged leptons</b>	mu -> e gamma Mu-> e conversion rare tau decays g-2 muon
<b>Neutral leptons/Neutrinos</b>	Oscillations Sterile neutrinos, difference neutrino-antineutrinos Neutrinoless Double beta decay
<b>Photons</b>	Heavy/Dark Photons Axion and other searches
<b>Protons</b>	Proton decay
<b>Neutrons/Nuclei/Atoms/etc</b>	Anti-Hydrogen Anti-proton Gravity EDM neutron