Welcome to the ACFI!
We seek answers to key open questions about nature’s fundamental interactions, such as:

Why is there more matter than anti-matter in the Universe?

What additional forces were active during the first moments after the Big Bang?

How are protons and neutrons put together?

Our mission:

Advancing research in theoretical and experimental physics at the interface of the Energy, Intensity, and Cosmic frontiers.

http://www.physics.umass.edu/acfi/
Activities

• **Core Research (in house):** *ATLAS, EXO, J Lab parity & chiral, LIGO, RHIC Spin, Borexino, Theory*

• **Targeted Workshops:** *Hadronic Probes, Lambda & Quasi Lambda, Higgs Portal,...*

• **Visiting Researchers:** *Ph.D. students (Australia, China), post-docs, faculty & senior researchers*
Past Workshops

Hadronic Probes of Fundamental Symmetries

*Joint ACFI-Jefferson Lab Workshop*

March 6-8, 2014
U Mass Amherst
Past Workshops

Lambda and Quasi-Lambda

ACFI Workshop

April 10-12, 2014
U Mass Amherst
Past Workshops

Unlocking the Higgs Portal

ACFI Workshop

May 1-3, 2014
U Mass Amherst
Past Workshops

Measuring the Neutron Lifetime

ACFI Workshop

September 19-21, 2014
U Mass Amherst
Past Workshops

Fundamental Symmetry Tests with Rare Isotopes

*Joint ACFI-FRIB Workshop*

October 23-25, 2014

U Mass Amherst
Past Workshops

Time-Reversal Tests in Nuclear and Hadronic Processes

ACFI Workshop

November 6-8, 2014
U Mass Amherst
Upcoming Workshops

Hadronic Matrix Elements for Probes of CP Violation

*ACFI Workshop*

January 22-24, 2015

U Mass Amherst
Upcoming Workshops

International Workshop on Baryon & Lepton Number Violation
ACFI Workshop/Conference

April 26-30, 2015
U Mass Amherst
Upcoming Workshops

CP-Violation in Higgs Sector Extensions
ACFI Workshop

May 7-9, 2015
U Mass Amherst
Meeting Logistics

• Wireless Network: UMASS (usr & pw in packet)
• Lunch: on campus
• Workshop Dinner: Thurs @ Johnny’s Tavern, 6:30 pm
  Friday: on own in Amherst Ctr
• Schedule: online
• People: students, post-docs, staff
• Espresso !
Workshop Scientific Goals & Questions

• What is the roadmap for reducing hadronic theory uncertainties for EDMs?

• What progress can be achieved through different approaches (lattice, DSE, EFT...)? Are they complementary? If so, how?

• What are the key conceptual and/or technical challenges that must be addressed make progress?

• Are there emerging new directions that call for further theoretical progress (e.g., few-body nuclear EDMs)?