The Annual Trip

to

Washington, DC

Bob Clare
UC Riverside

USLUO Annual Meeting

2009 Washington Visit

Participation

- 16 USLUO, With ~20 FNAL-UEC, ~10 SLUO)
- 4 Graduate Students & 3 Postdocs from USLUO ☺
- 10 CMS + 6 ATLAS
- The main issue USLUO had was finding funds for travel

Organization

- Worked with Fermilab UEC and SLAC SLUO
  - They've done this many times; it was only second time for us
  - USLUO did an excellent job in spite of being newcomers and the complications due to funding ☺

Message to Congress - One-pager and brochure

2008

2009

HEP DC Visits
270 Offices in 2007
150 Offices in 2008
200 Offices in 2009

HEP One Pager

Our Message

- Please support research in the Physical Sciences through the DOE Office of Science & NSF in the FY2010 Budget
- Thank you!
  Special thanks for 2009
- DOE is a Main Funder of broad-based research in the physical sciences
- Emphasis on University + Laboratory Partnership
- Long Term Support: 10-20 year life cycle of experiments
- Highlight is the LHC

- Spinoffs: Creating Technologies
- We Train Innovators …
- The enablement of the ARRA Act
- America COMPETES: Maintain the 7-8 year doubling trajectory
- Very timely Obama speech at National Academies a bonus ☺
  - Restoring Science to its rightful place
  - Way up on the national agenda

"The U.S. stands at a pivotal point in our history. Competition is heating up around the world... The only way we can hope to compete is with brains and ideas that set us above the competition- and that only comes from investments in education and R&D."
Craig Barrett, Chairman and CEO, Intel Corporation - Dec 2007

Because of your support, many technologies have been made possible.
High Energy Physics research has facilitated the development of technologies that help people and the environment. Some examples include:

Accelerator technology has numerous applications.

Fighting AIDS – Researchers used the Advanced Photon Source at Argonne National Laboratory to develop Kaletra, one of the world's most-prescribed drugs to fight AIDS.

Securing Our Borders – Particle accelerator based tools allow more accurate scanning of cargo. A new screening technology can now penetrate through steel four times farther than previous methods. This improves weapons detection and the ability to inspect cargo at ports.

Making Tires Green – The auto industry uses particle accelerators to treat the material for radial tires, eliminating the use of solvents that pollute the environment. The new treatment also helps to reduce two to three pounds of rubber per tire resulting in decreased material cost and waste.

We train the next generation of innovators.
Your support for High Energy Physics enables us to train young people to make significant contributions within physics, as well as in medicine, materials science, defense, and finance. Our nationally recognized education programs, such as Quarknet and Saturday Morning Physics, promote interest in science to K-12 students.

Educating Tomorrow's Workforce
- Education programs such as Quarknet and Saturday Morning Physics aid Science, Technology, Engineering, and Mathematics (STEM) Education.
- Training of physics PhDs provides a highly educated workforce that contributes to many fields.

We thank you for your support.
Emergency supplemental funding in 2008 averted unplanned layoffs of highly skilled scientists and technicians at national laboratories. The American Recovery and Reinvestment Act of 2009 allows work to begin on new experiments that have been already endorsed by international scientific panels. The additional funding helps to bring High Energy Physics funding in line with the goals of the bipartisan America COMPETES Act.

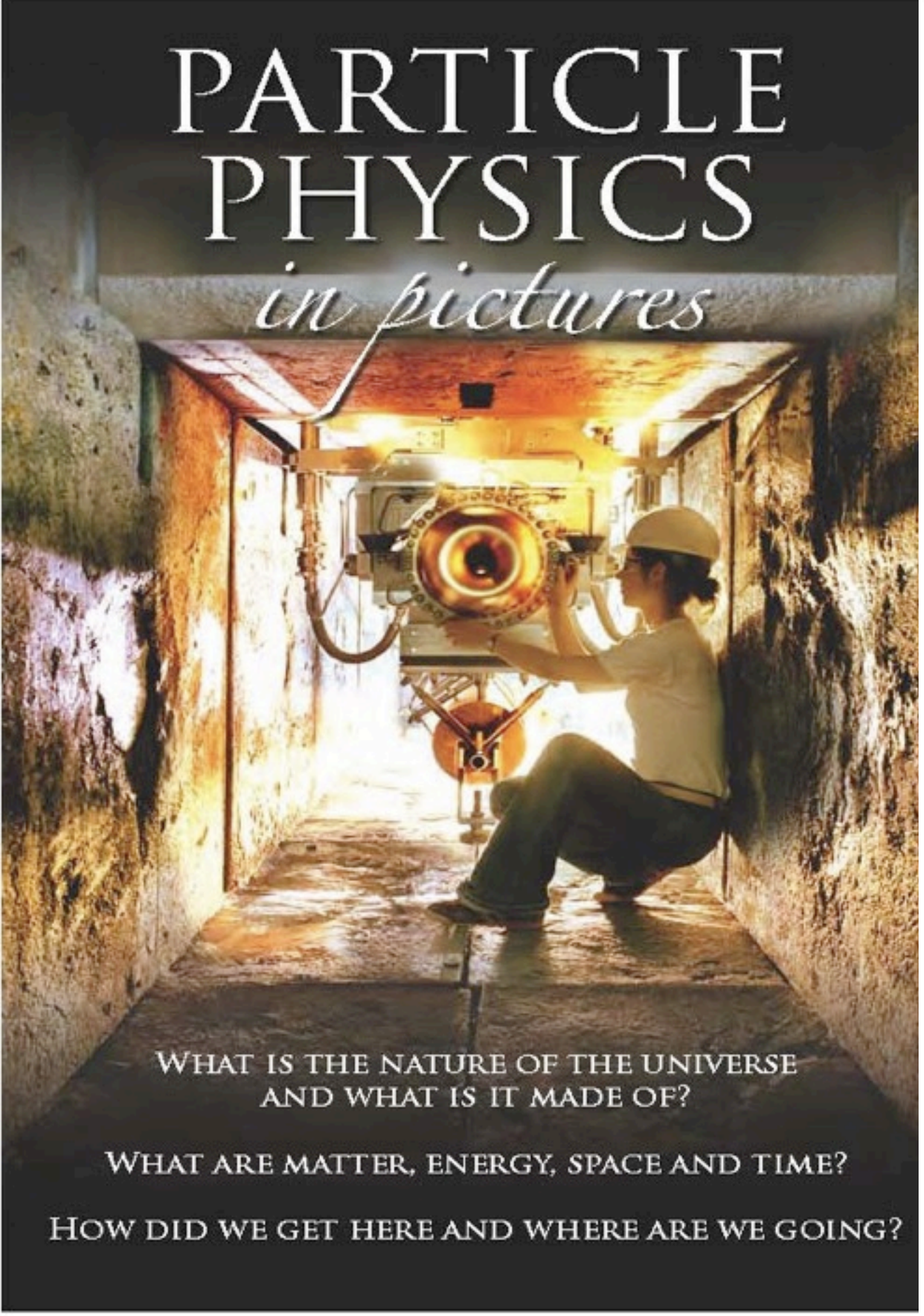

High Energy Physics promotes STEM education.

America COMPETES
- The America COMPETES Act authorizes doubling of support for the physical sciences by fiscal year 2014.
- The America COMPETES Act seeks to restore the health of the nation's science program.

Please support High Energy Physics research through the Department of Energy's Office of Science and the National Science Foundation in the FY2010 budget.

Thank you for your support of High Energy Physics.

PARTICLE PHYSICS
in pictures



WHAT IS THE NATURE OF THE UNIVERSE
AND WHAT IS IT MADE OF?

WHAT ARE MATTER, ENERGY, SPACE AND TIME?

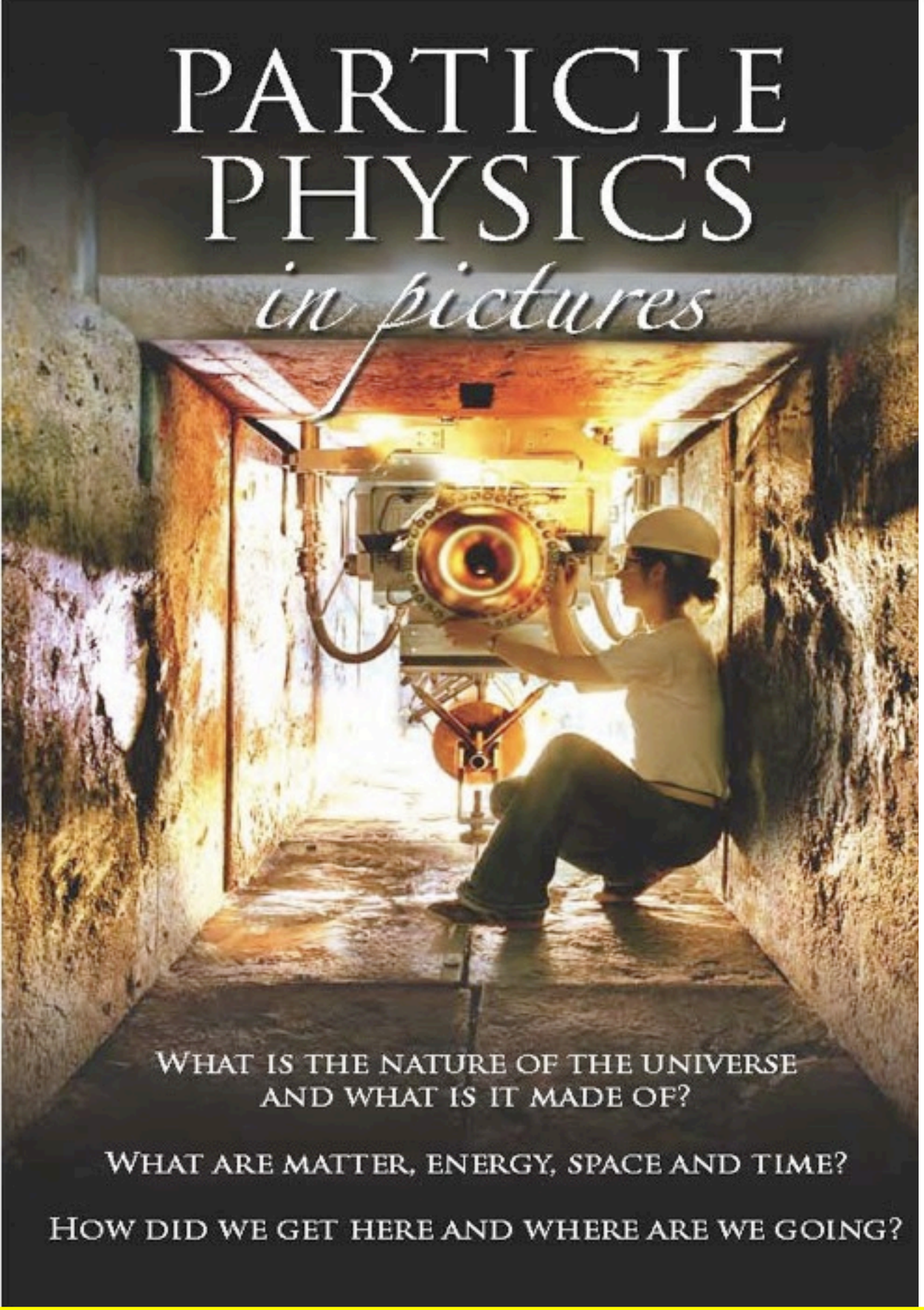
HOW DID WE GET HERE AND WHERE ARE WE GOING?

Inspiring the Next Generation

Bob Clare, UC Riverside

USLUO Ann

PARTICLE PHYSICS
in pictures



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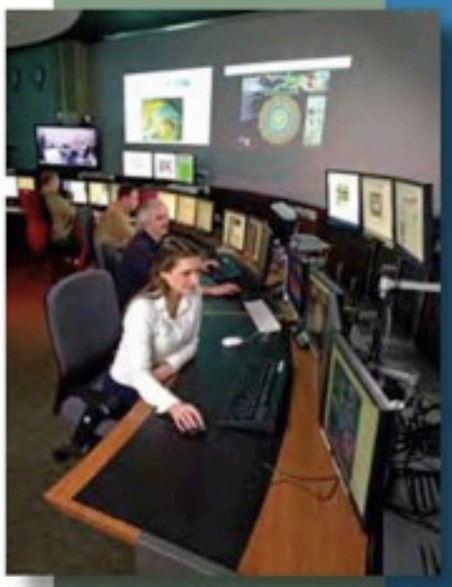
The ‘big’ questions

LHC

LARGE HADRON COLLIDER

Aerial view of the Large Hadron Collider at the CERN laboratory near Geneva, Switzerland *(top right)*. When it turns on this year, it will be the world's largest and highest-energy particle accelerator. Over 10,000 scientists and engineers from nearly 60 countries have helped building the LHC and its experiments.



Approximately 1000 of these researchers come from US universities or national laboratories. On the Compact Muon Solenoid experiment (CMS), the approximately 700 members from US institutions make the United States the largest national group. The Remote Operations Center at Fermilab *(top left)* allows US scientists to monitor their experiment in real time from over 4,000 miles away.

More than 40 US institutions are members of the 1900-person ATLAS collaboration, pictured at CERN *(bottom right)*.

Many components of the LHC experiments were designed and assembled in the United States. Part of the CMS high precision tracking detector was assembled at Fermilab *(bottom left)*.

A Worldwide Effort

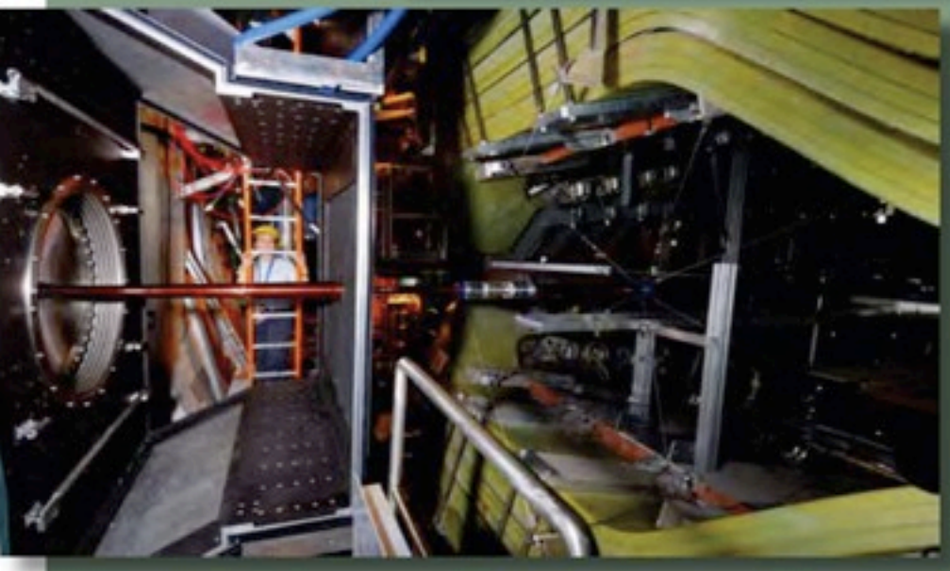
Bo ual Meeting,

"Without Borders"

LHC

At the LHC, two beams of protons traveling at nearly the speed of light collide in four detectors, recreating the conditions just after the Big Bang. At nearly 150 ft long, and more than 80 feet wide and high, the ATLAS detector is the biggest – half the size of the Notre Dame Cathedral in Paris *(top right)*. Workers complete the installation of the heavier CMS detector, which weighs 13,000 tons *(bottom right)*. These two multipurpose detectors will lead to the discoveries that could dramatically change how we think of the universe.

The Alice experiment *(top left)* seeks to discover secrets about a new state of matter accessible in high-energy collisions of heavy ions at the LHC – the quark-gluon plasma. The LHCb detector *(bottom left)* is designed to solve a deep mystery of why there is so little antimatter in the universe.



The most complex instruments of mankind

Reactions to Our Message

Most congressional staff understood the importance of science

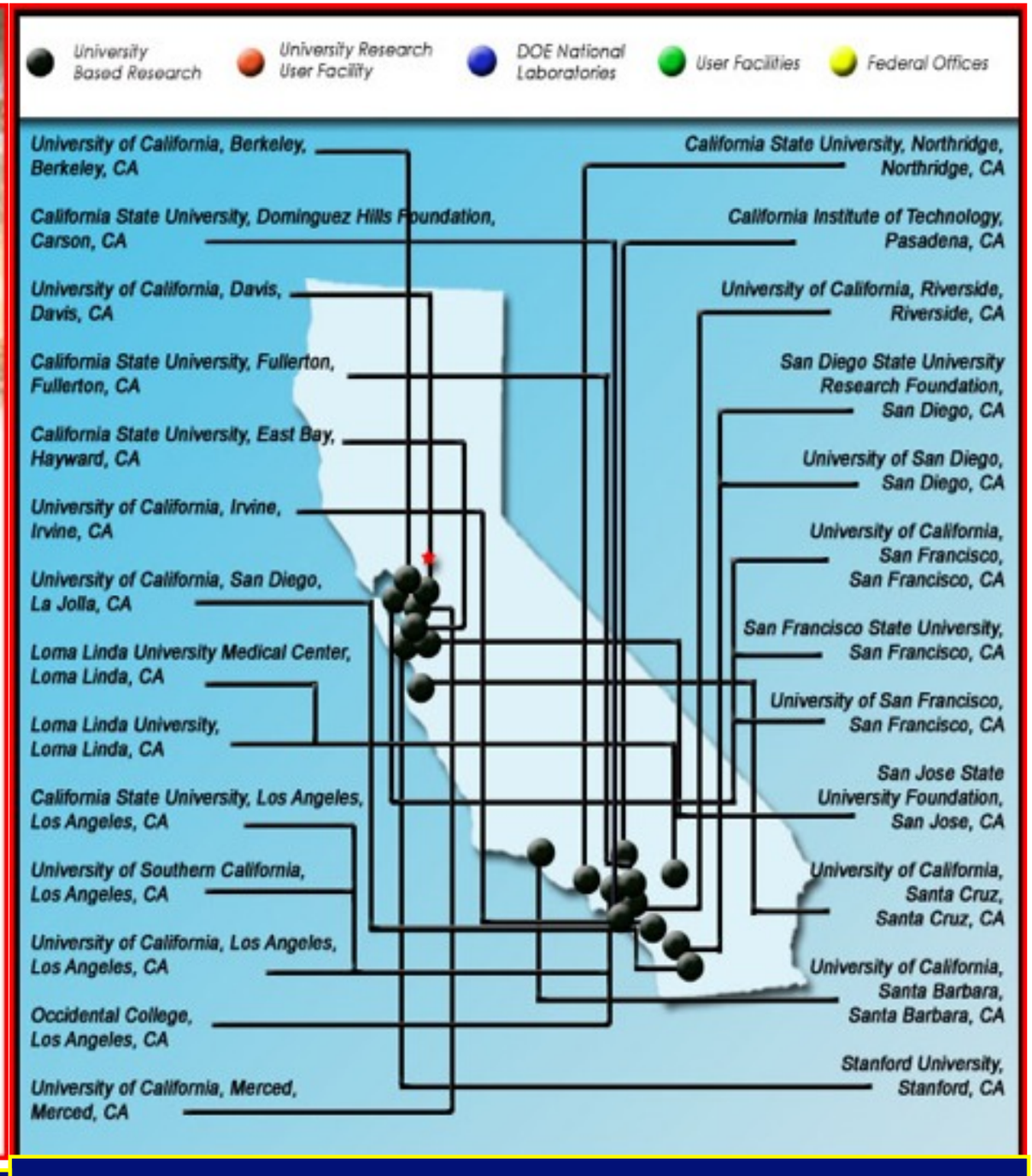
- Overall we are regarded as a well-organized field
- Manages its scientific opportunities well
- Makes good use of the funding provided
- What we do has great impact on society at large
  - Especially LHC press – paraphrasing a young staffer:
    - "Cool – you work on the black hole machine ☺"

One pager and leave-behind packet

- Very effective in some offices
- The fact that basic science provides a steady stream of near- and medium-term benefits to society impressed some staffers; not others.
- Education and outreach (Quarknet, Saturday morning physics, individual efforts) resonated strongly in many offices.
- In some offices, it was essential to show what NSF & the DOE Office of Science brought to the congressman's district.
  - http://dellweb.bfa.nsf.gov/AwdLst2/default.asp
  - http://www.science.doe.gov/SC_Funding/allstates.htm

DOE Office of Science
Funding Guide: by State and District

http://www.science.doe.gov/SC_Funding/



CA: DOE/SC Funded Univ.

Recruiting Senate Champions

On the House side we have strong supporters

- Bill Foster, Rush Holt, Vernon Ehlers, …
- Such support largely lacking in the Senate Majority

A goal of some of us was to get a Senator to take up the issue of support for basic science as His (or Her) issue, particularly during floor debate on budgets, from FY2010 on.

- E.g. following up with Barbara Boxer

May 22: A Dear Colleague Letter by Energy and Natural Resources Committee Chair Sen. Jeff Bingaman and Lamar Alexander supporting President Obama's FY2010 request of "at least $4.9 billion" for the DOE Office of Science.

"Securing this amount would largely keep DOE/SC on the seven year doubling plan set out by the America COMPETES Act of 2007 (P.L. 110-69)"

Discussions at NSF

- Joe Dehmer: NSF is learning how to do large projects (e.g. LIGO); now DUSEL is the focus
- DOE partnership, especially Project-X beams to DUSEL seen as necessary
- The out-year funding perspective at NSF was more conservative than at OMB or DOE
  - Joe Dehmer said that the budget deficits will become intolerable in "2-3 years", indicating that this would stem the funding growth.
  - This sentiment was also expressed by some senior staffers (some in democratic offices)

Discussions at DOE

- Pat Dehmer was much more upbeat than Joe at NSF
- Very happy with Obama's NAS speech
- Contains the goal of 3% of GDP for R&D.
  - US now at 2.66%; at height of the space race it was 2.9%
- So we should see some further growth
  - Where would the growth occur ?
- Pat said that NSF, DOE OoS, and NIST only were singled out for doubling.
  - In response to question from NASA if they would also be included, answer from Obama administration was "no".

Money News (ARRA) at NSF

- **Of $3B of ARRA funds, $2B is for broad-based research and $1B for infrastructure projects.**
  - ➡Awarded as new peer-reviewed 3-year grants (possibly front loaded)
    - Concern about potential echo-shortfall in 3 years
  - ➡Will NOT be added supplements of existing grants;
    - Normal NSF supplement process available:up to 20% of the original grant amount
- **New solicitations out: ARRA/ARI, MRI**
- **New programs targeting young investigators …**
  - ➡They were delayed by increased administrative (reporting) burdens at the agency.

News on Money Flow At DOE

- FY09 university budgets: essentially flat
- One time supplements for non-infrastructure projects (e.g. travel and support at CERN for commissioning)
  - ➡ Dealt with quickly in May; few percent
- Informal call for university infrastructure proposals (using ARRA funds) issued in May: $10M in total
  - ➡ 5 pages max. per grant, to expedite reviews
  - ➡ Responses done by August [Promise by Steve Chu to disburse 70% ARRA funds by Labor Day]
  - ➡ 46 Tier3s (both ATLAS & CMS) funded at an average of $50k; lab instruments
- Reporting burden for ARRA much increased
  - ➡ For example at the agencies: DOE Weekly Report.
  - ➡ Increased burden for grantees as well

Overall Impression

- **Most offices see us as the 'good' guys**
- **Most offices don't realize how much we rely on the DOE Office of Science**
  - ➡Prevalent view that NSF "does" science
  - ➡We need to continue to emphasize the importance of the DOE
- **The number of scientists on the Hill seems to be on the rise**
  - ➡Saw a number of new staffers with physics backgrounds (including Ph.D.s)
- **Most importantly: we need to keep delivering the message**
  - ➡Congress changes
  - ➡Staffers change (Fellows especially)
  - ➡Issues change
- **We must remain vigilant!**