Annual US LUO Meeting Sept. 26
Agenda

❒ 8:30 – 8:45	Welcome to LBNL	Director A. Paul Alivisatos
❒ 8:45 – 9:15	Introduction by the Chair	H. Newman (Caltech)
❒ 9:15 – 9:45	Status of the LHC	Mirko Pojer (INFN-CERN)
❒ 9:45 – 10:05	US Accelerator Research Program	Gian Luca Sabbi (LBNL)
❒ 10:05 – 10:30	ALICE Status Report	Peter Jacobs (LBNL)
❒ 10:30 – 11:00	ATLAS Status Report	Valeria Perez Reale (Columbia)
❒ 11:00 – 11:20	COFFEE BREAK	
❒ 11:20 – 11:50	CMS Status Report	Tulika Bose (Boston)
❒ 11:50 – 12:15	LHCb Status Report	Steven Blusk (Syracuse)
❒ 12:15 – 12:45	DOE OHEP Report	Glen Crawford (DOE OHEP)
❒ 12:45 – 13:15	Sandwich LUNCH	
❒ 13:15 – 14:20	Young Physicists' Posters (with dessert and coffee)	Sridhara Dasu (Wisc., Organizer)
❒ 14:20 – 14:50	HEP Status at NSF	Jim Reidy (NSF)
❒ 14:50 – 15:15	ACCU Report	Darin Acosta (Florida)
❒ 15:15 – 15:25	LUEC Election Committee	J. Huth (Harvard), B. Klima (FNAL)
❒ 15:25 – 16:10	Discussion of Trips to DC	Robert Clare (UC Riverside) et al.
❒ 16:10 – 16:30	AFTERNOON BREAK	
❒ 16:30 – 17:30	Guest Perspective:	Charles Petit, US News & World Report
❒ 17:30 – 18:20	Open Forum (Discussion of Issues)	
❒ 18:20	AOB	
❒ 18:40	Adjourn for Dinner	

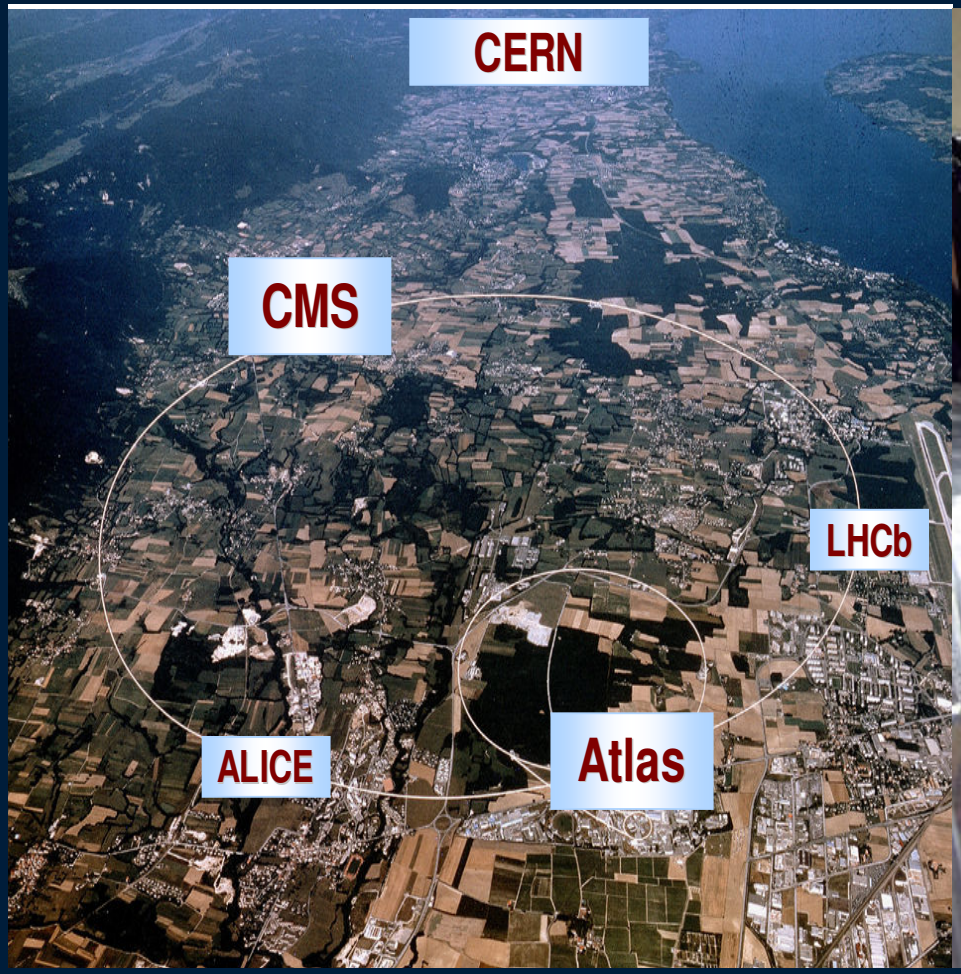
US LUO Chair's Report

Harvey B Newman, Caltech
USLUEC Chair

2nd US LUO Annual Meeting

September 26, 2009

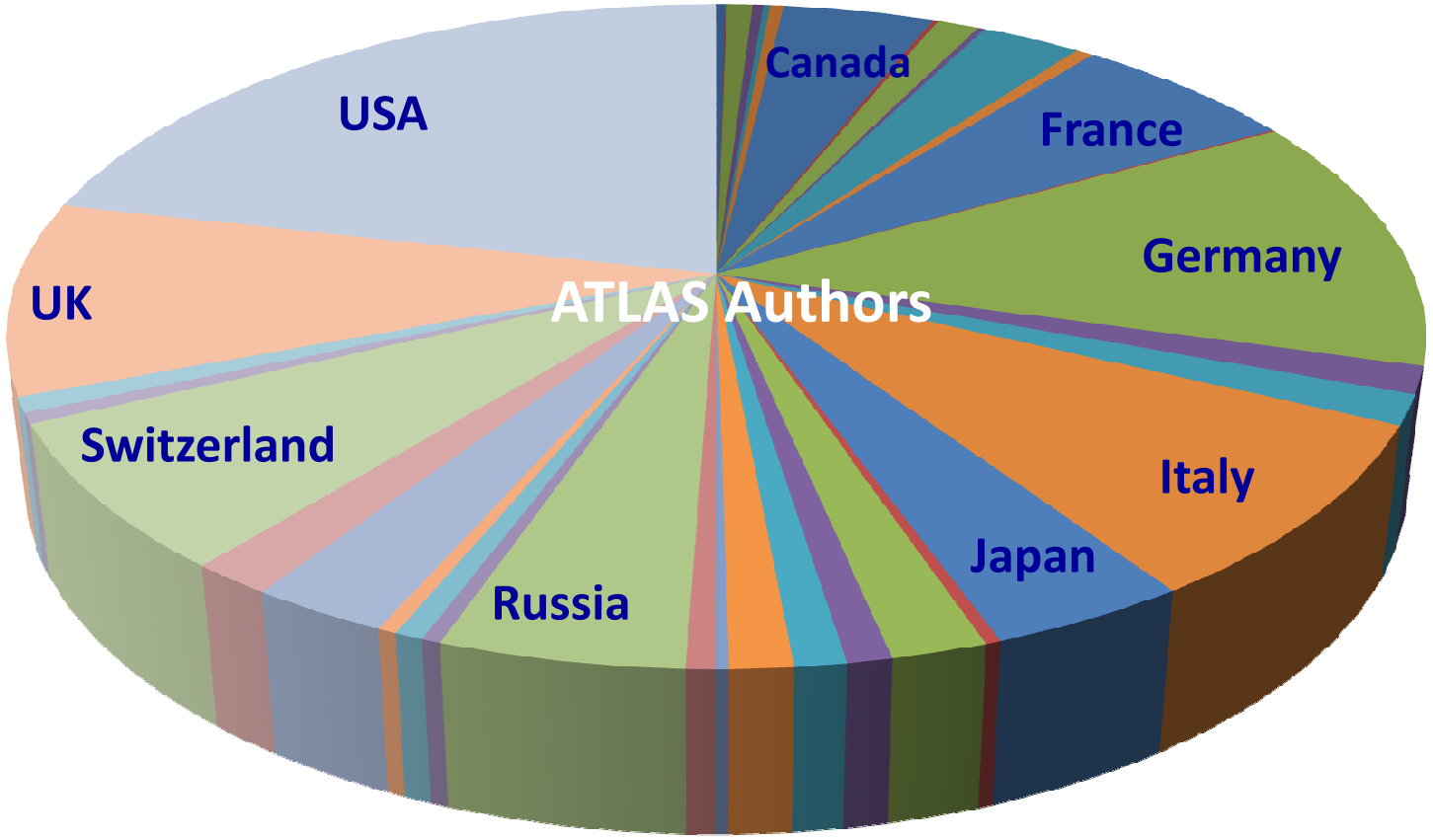
US LHC and the LHC Program



7000 Scientists and Engineers, 300+ Institutions
1700 from ~94 Universities and Labs in the US

US ATLAS in ATLAS
US is the Largest Nat'l Contingent

US / ATLAS Authors = 582/2,719 = 21%



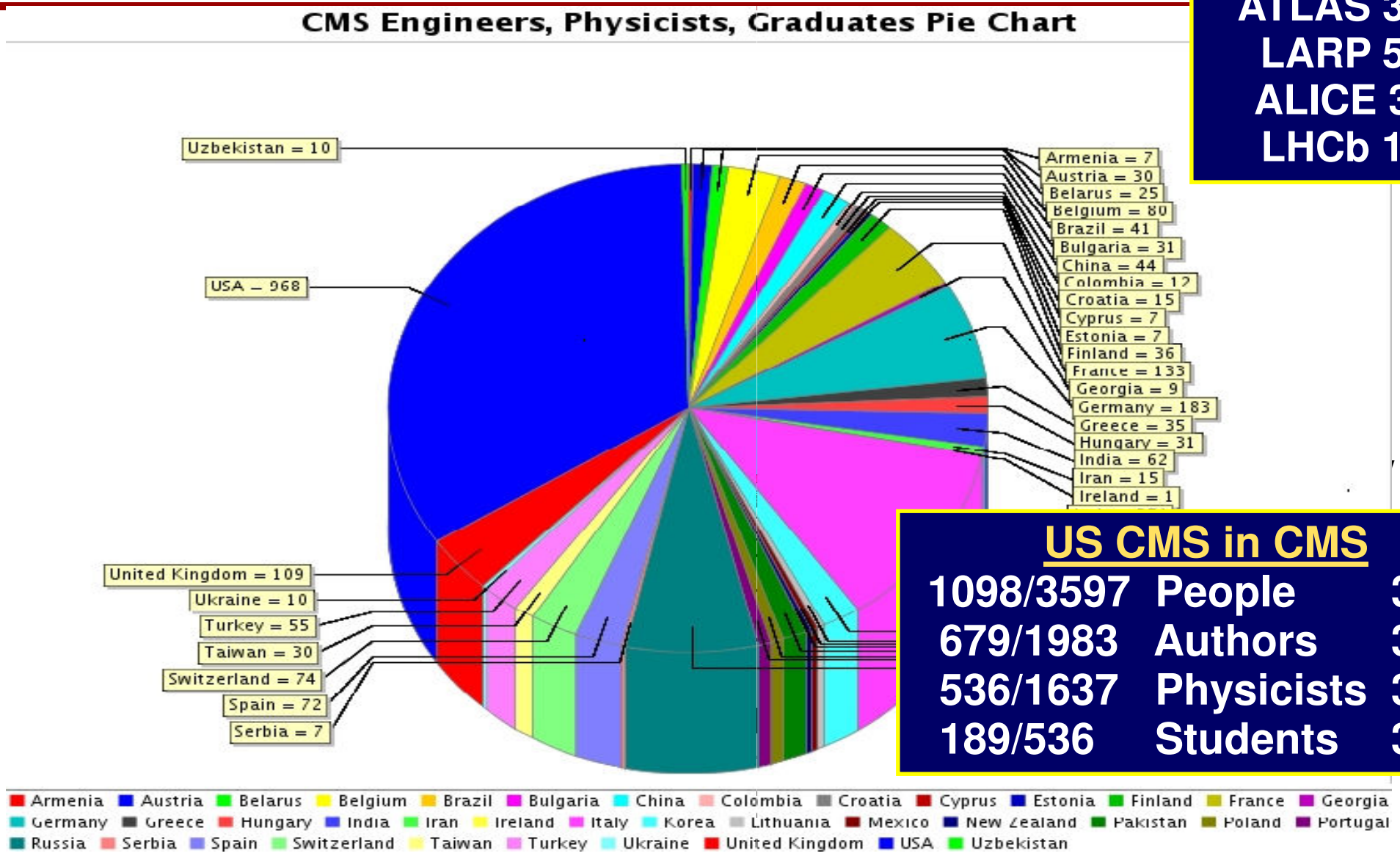
Argentina
Armenia
Australia
Austria
Azerbaijan
Brazil
Canada
Chile
China
Colombia
Czech Republic
Denmark
France
Georgia
Germany
Greece
Israel
Italy
Japan
Morocco
Netherlands
Norway
Poland
Portugal
Republic of Belarus
Romania
Russia
Serbia
Slovak Republic
Slovenia
Spain
Sweden
Switzerland
Taiwan
Turkey
UK
USA

US / ATLAS Grad Students = 169/849 = 20%

US LHC: 27% of the LHC Program

US LUO: 852 Strong

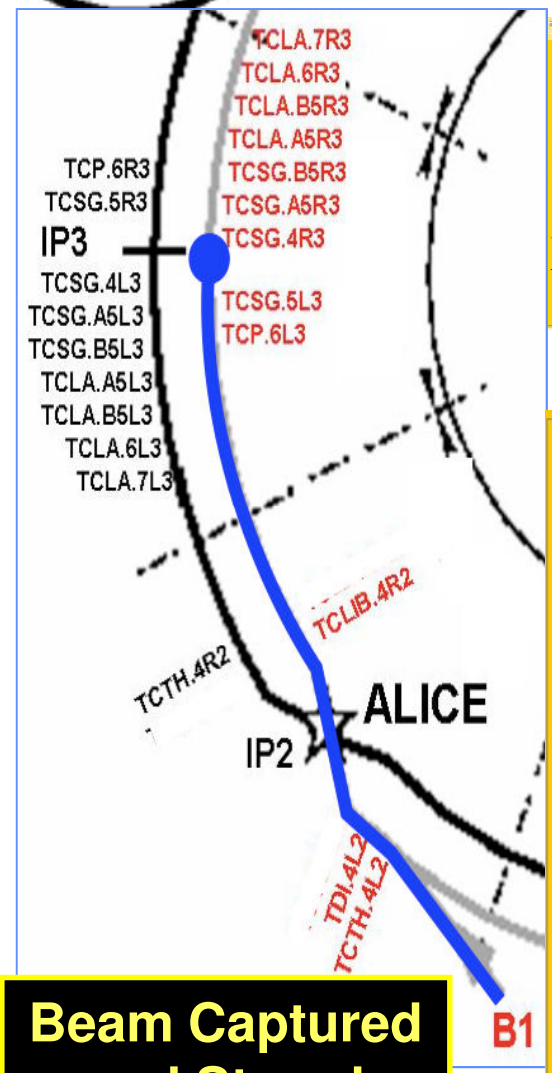
CMS	405
ATLAS	335
LARP	59
ALICE	37
LHCb	15



US CMS in CMS

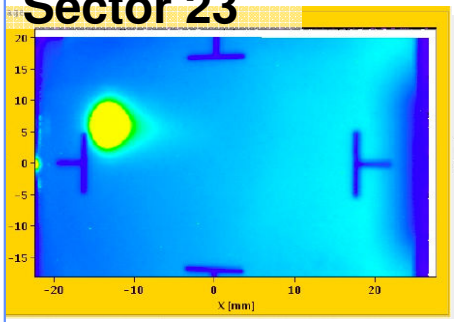
1098/3597	People	31%
679/1983	Authors	34%
536/1637	Physicists	33%
189/536	Students	35%

First Shots, and First Turn !

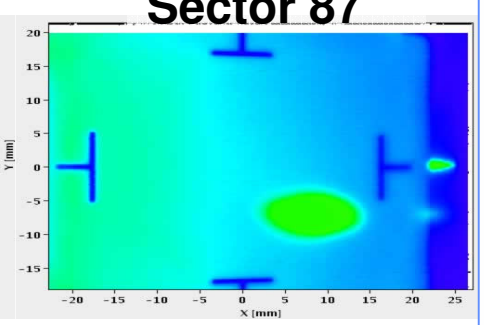


Beam Captured and Stored for 45 Minutes

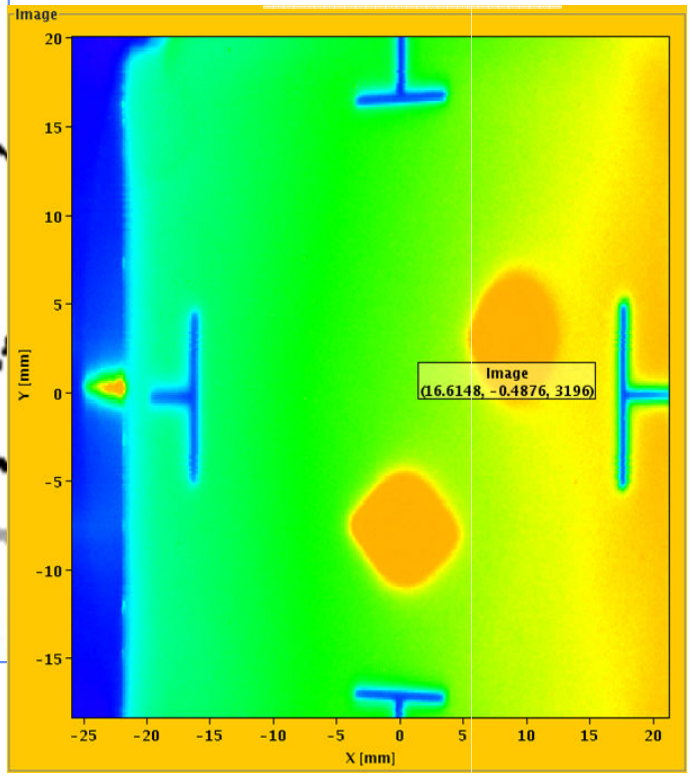
Sector 23

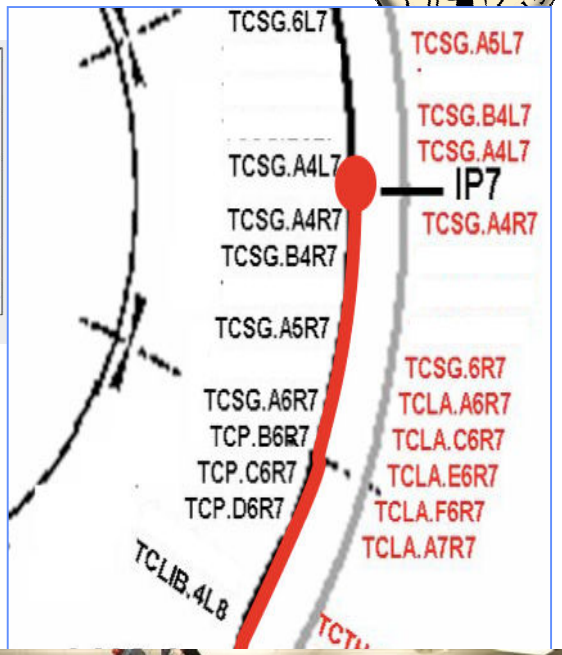


Sector 87

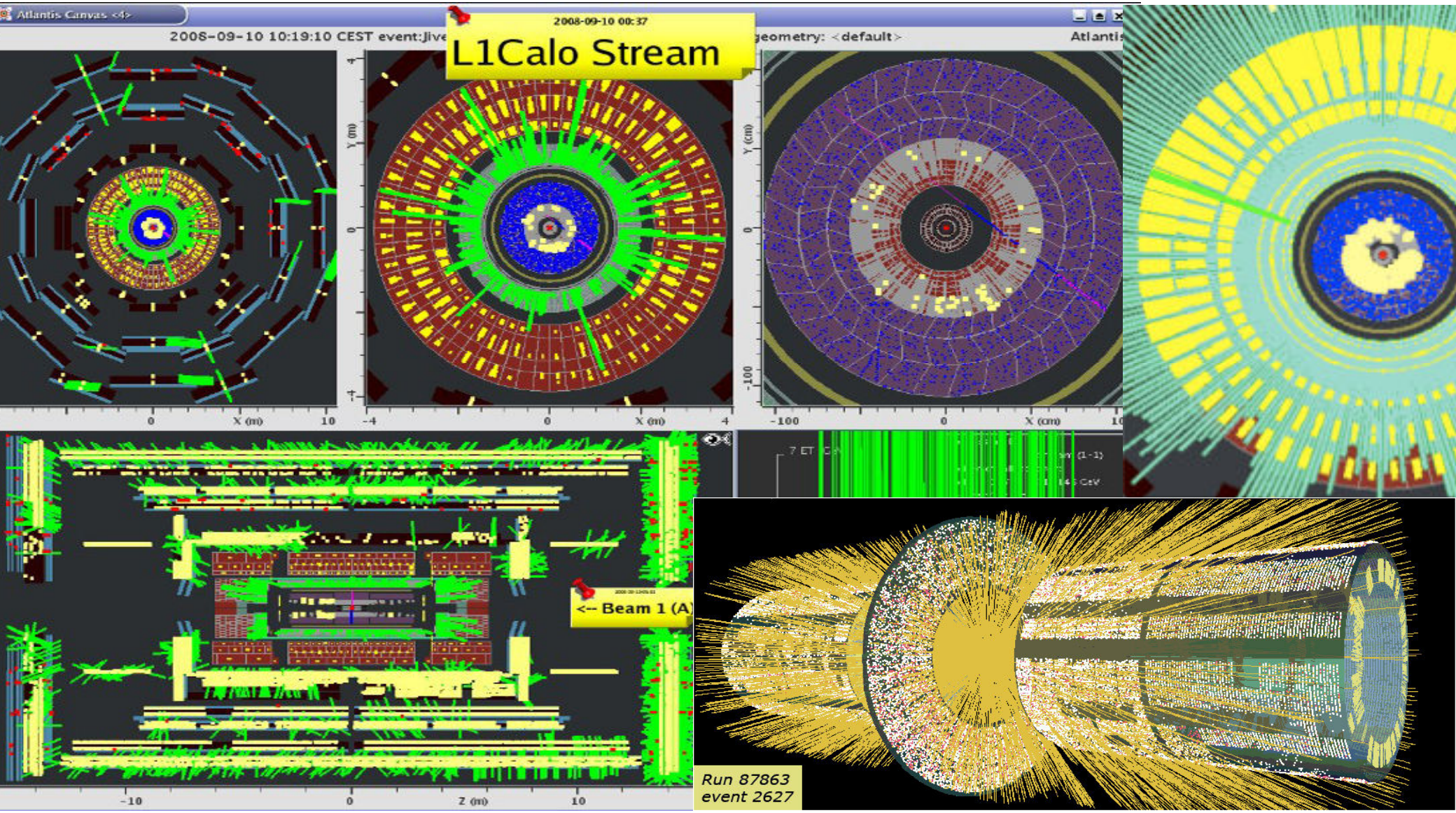


First Turn

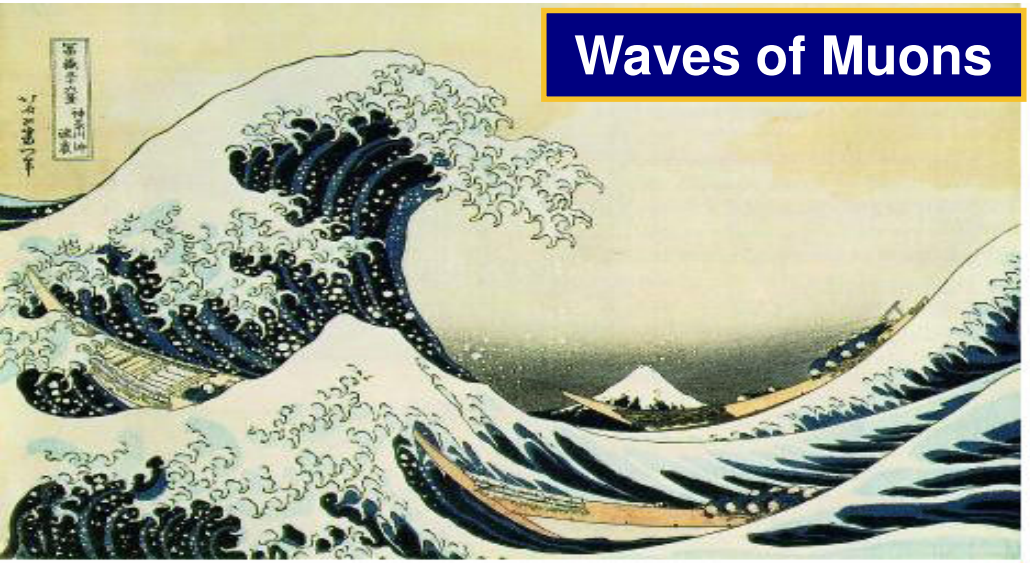


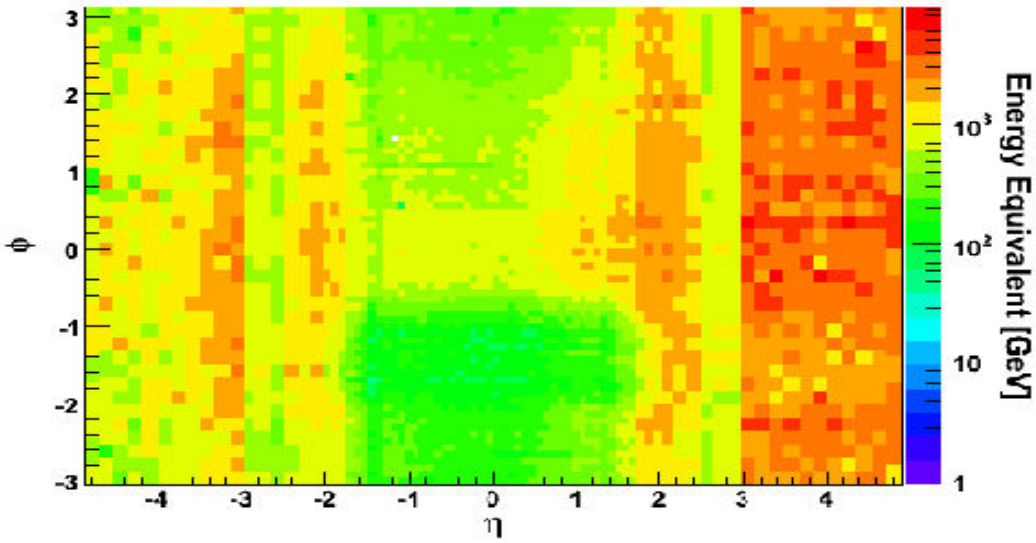


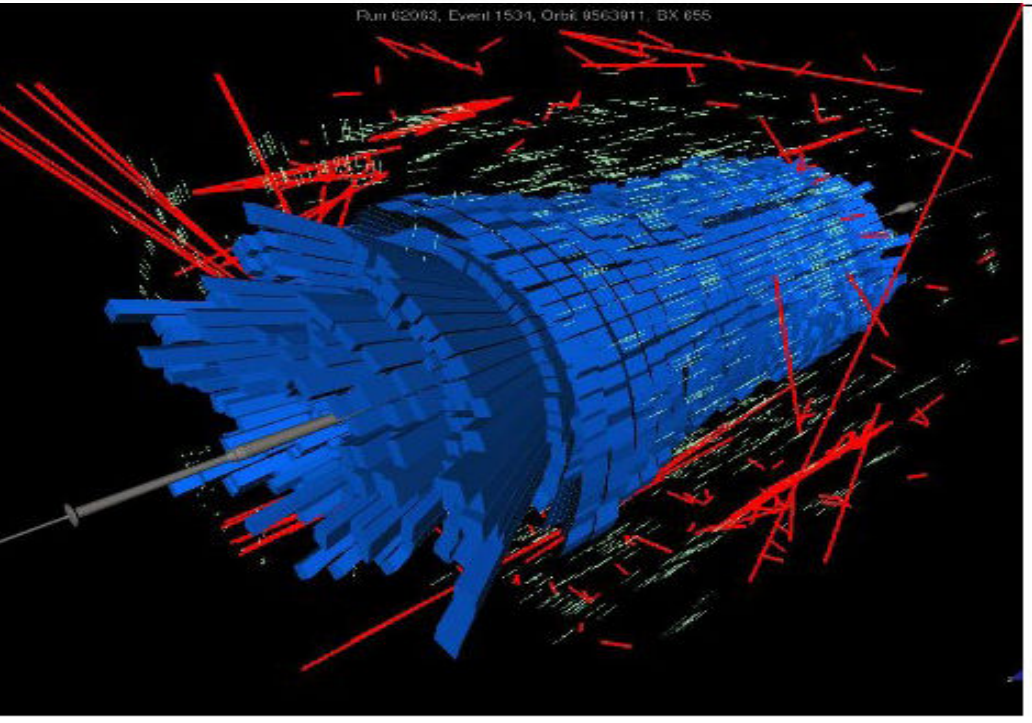
Splash Events in ATLAS (M. Nessi)

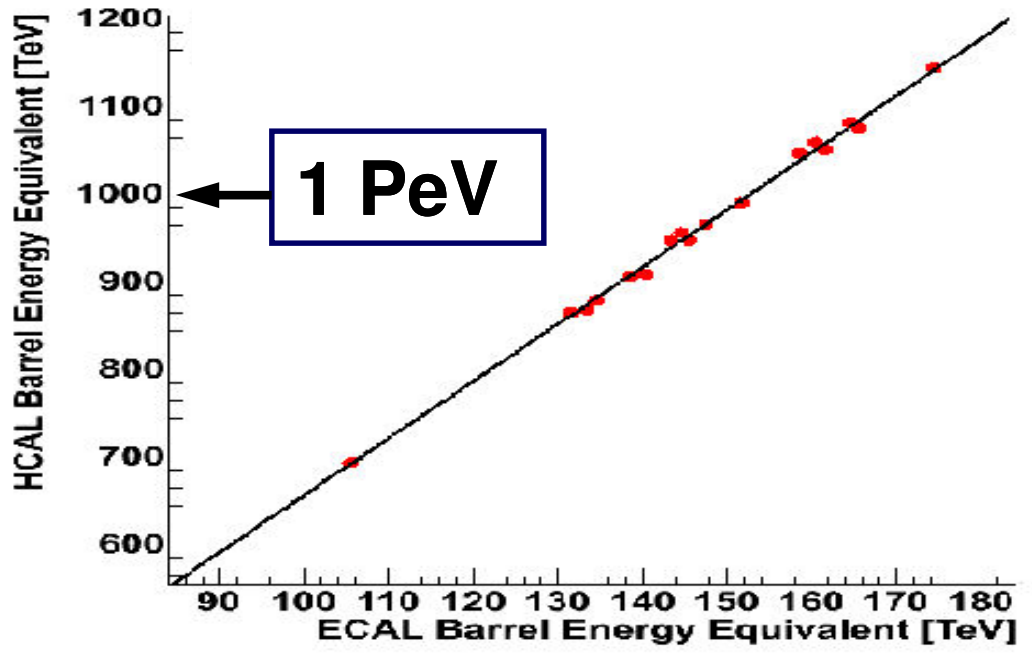


1st CMS Events: Collimators Closed









September 10: LHC Startup Day

Viewed by ~1 Billion People

1680 Sites on EVO

US LHC USERS ORGANIZATION

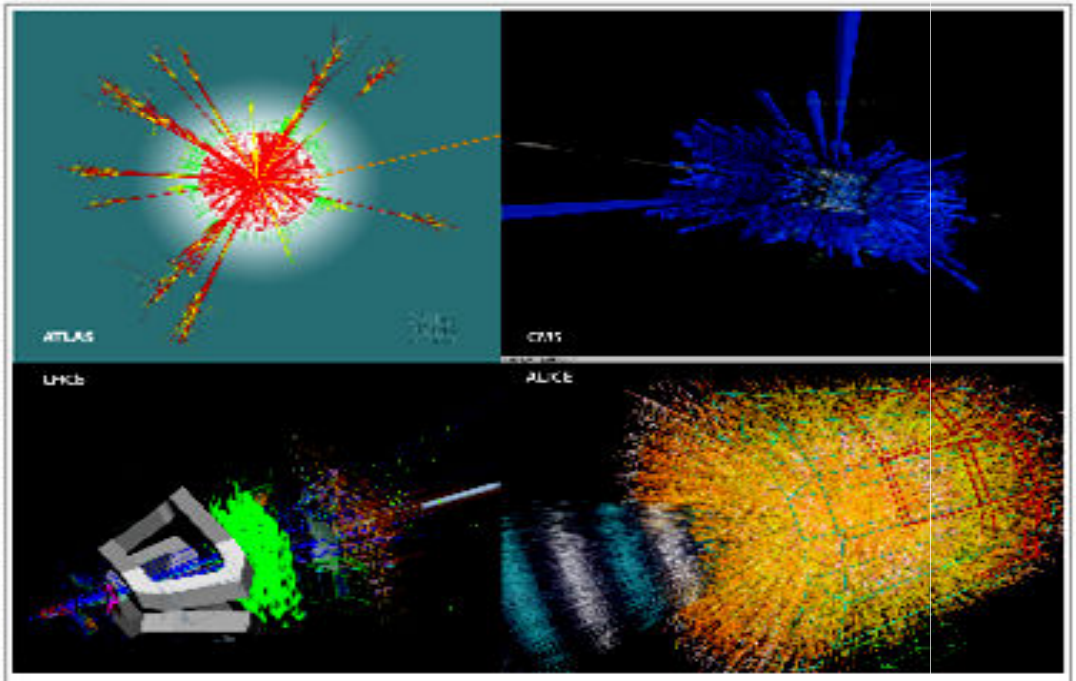
US LUO

The 2008 Annual Meeting October 24 at Fermilab

2009 Annual Meeting September 25-26 at LBNL

3.5 TeV : a good start!

To the pessimists out there, the 3.5 TeV starting energy of the LHC will be like a half-empty glass. However, the thousands of physicists working at the experiments certainly do not share these feelings. On the contrary, they are as excited as ever since they will be the first to observe what happens to matter in these (still) unprecedented conditions.



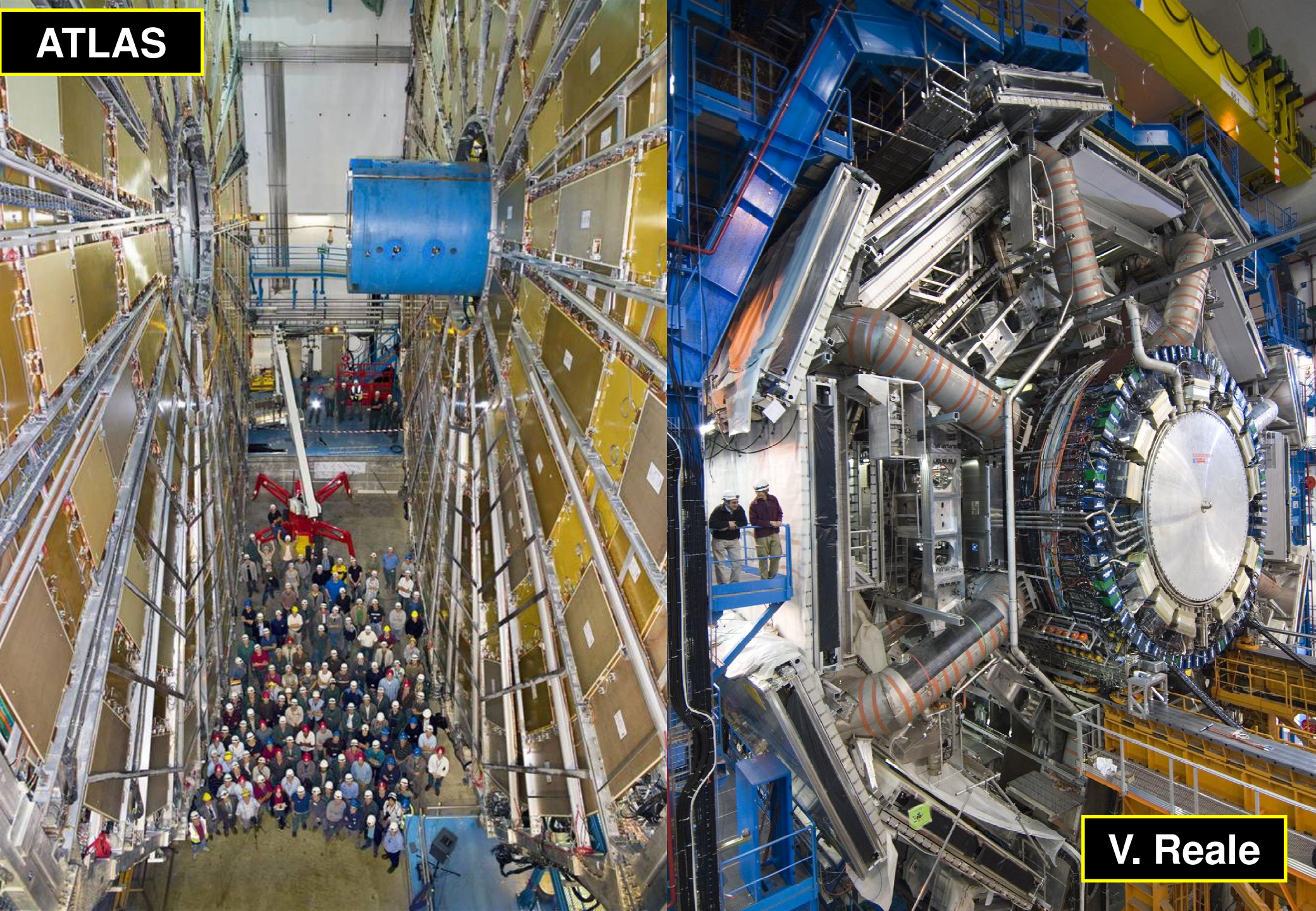
Coming soon: the real data!

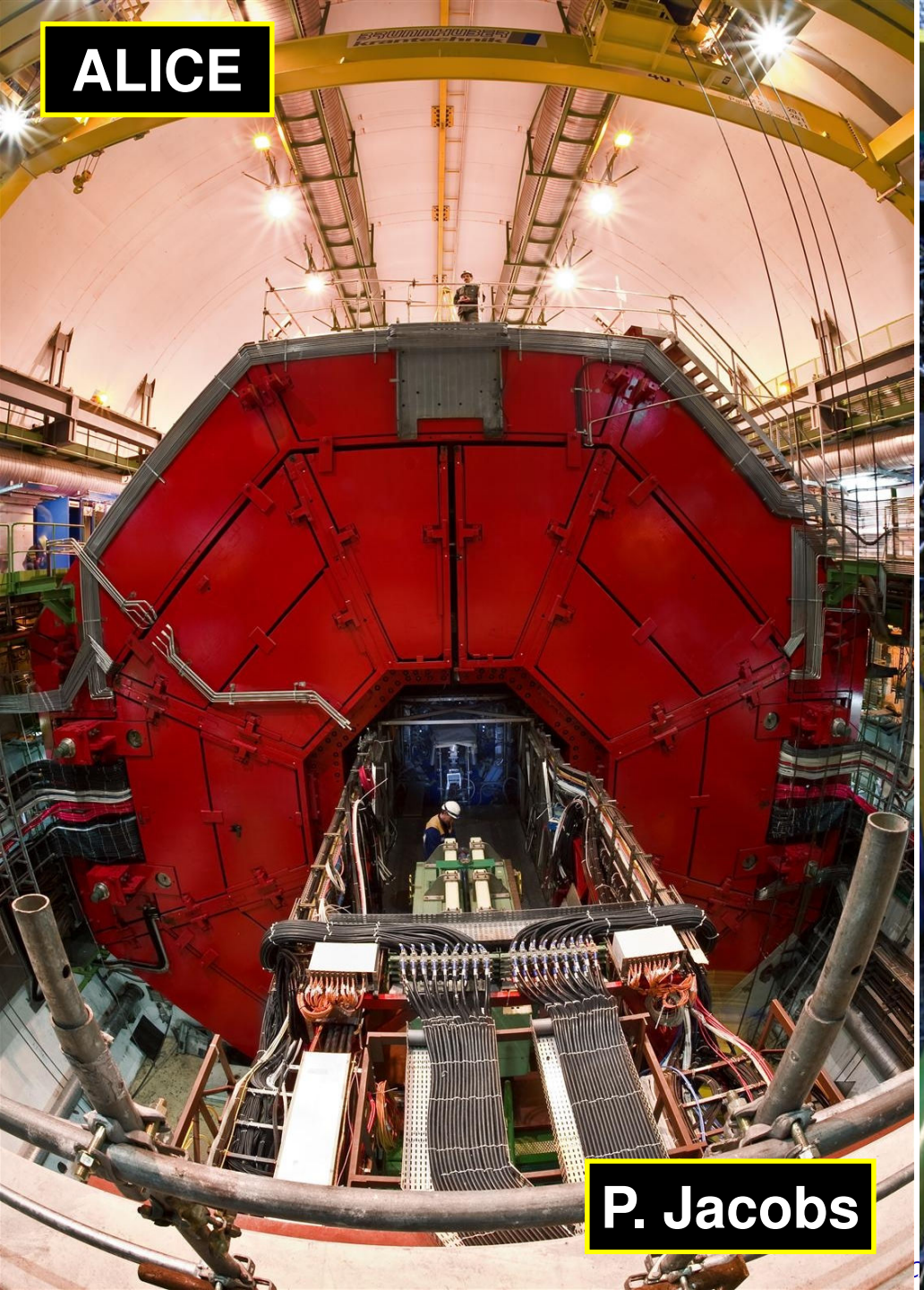
Although one might think that 3.5 TeV for a machine designed to operate beams at 7 TeV is as frustrating as driving a Ferrari when the speed limit is 60 km/h, physicists working at the LHC experiments see the glass half full: they are now focusing on how to make the best use of this intermediate energy. For them, having the opportunity to test their detectors at non-extreme conditions is rather a

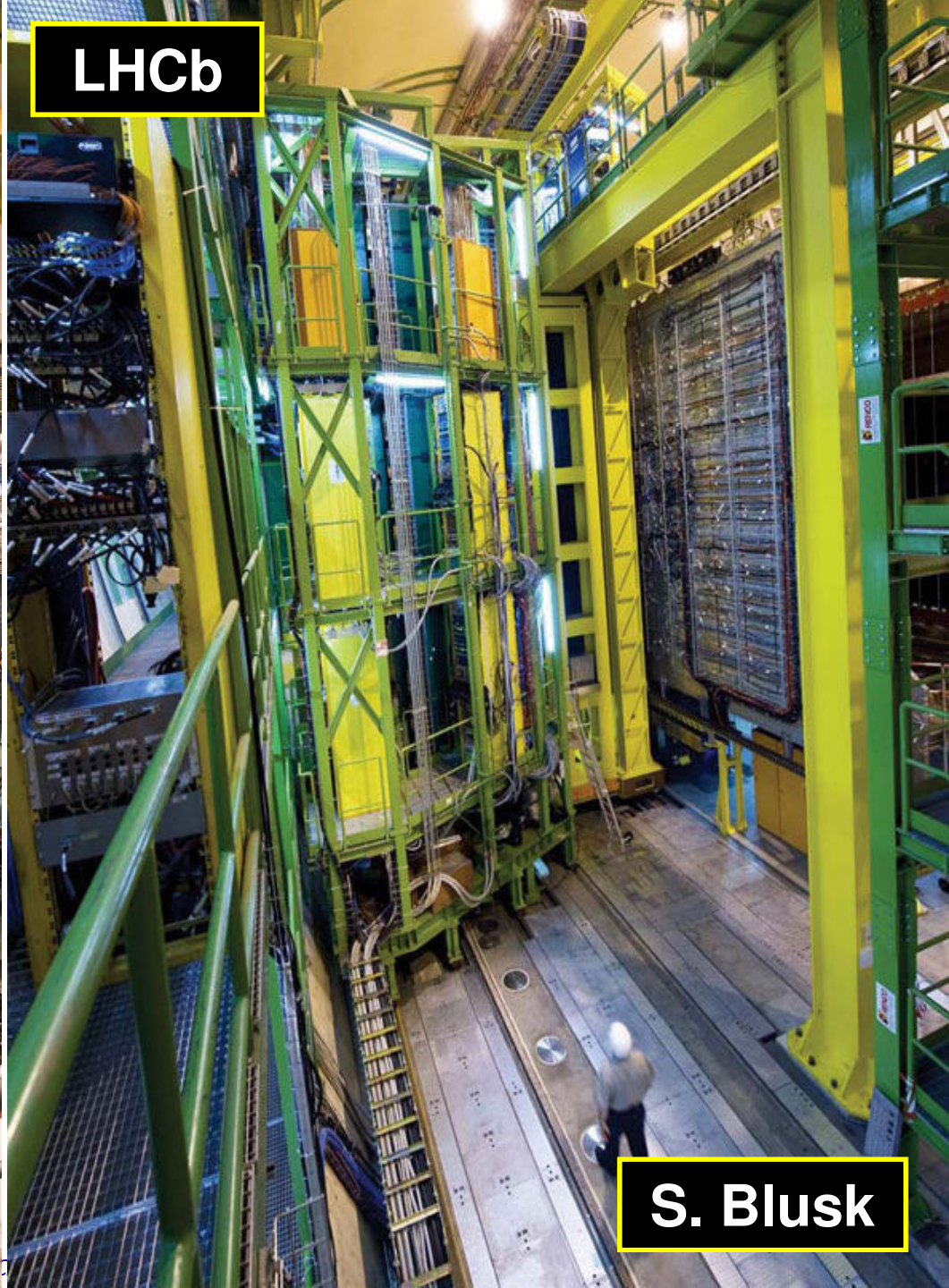
The Impact of September 19

Lab/University Synergies Carrying Us Through

- We remain highly motivated and focused as a community, after the great LHC start September 10, and the September 19 events
  - CERN has undertaken a systematic recovery program, & LHC upgrades (pressure relief; nano-ohms; stronger supports; pressure doors)
  - ATLAS and CMS: Last elements installed, ~all channels working, fully preparing for data: CR alignment, calibration, S&C, etc.
- But for some the personal impact has been severe
  - Students with many years working on their Ph. D already
  - Postdocs and young faculty expecting real LHC data for their job search, or promotion
  - Faculty, PDs, engineers with key roles in coordination and commissioning, that must now stay another year
- There are funding impacts [important with FY2008 setbacks]
  - Another year at CERN for key personnel
  - We cannot continue not to accept enough students, for a 3rd year, without consequences for our field
- ➡ Special needs for Cost of Living Allowances, travel funds

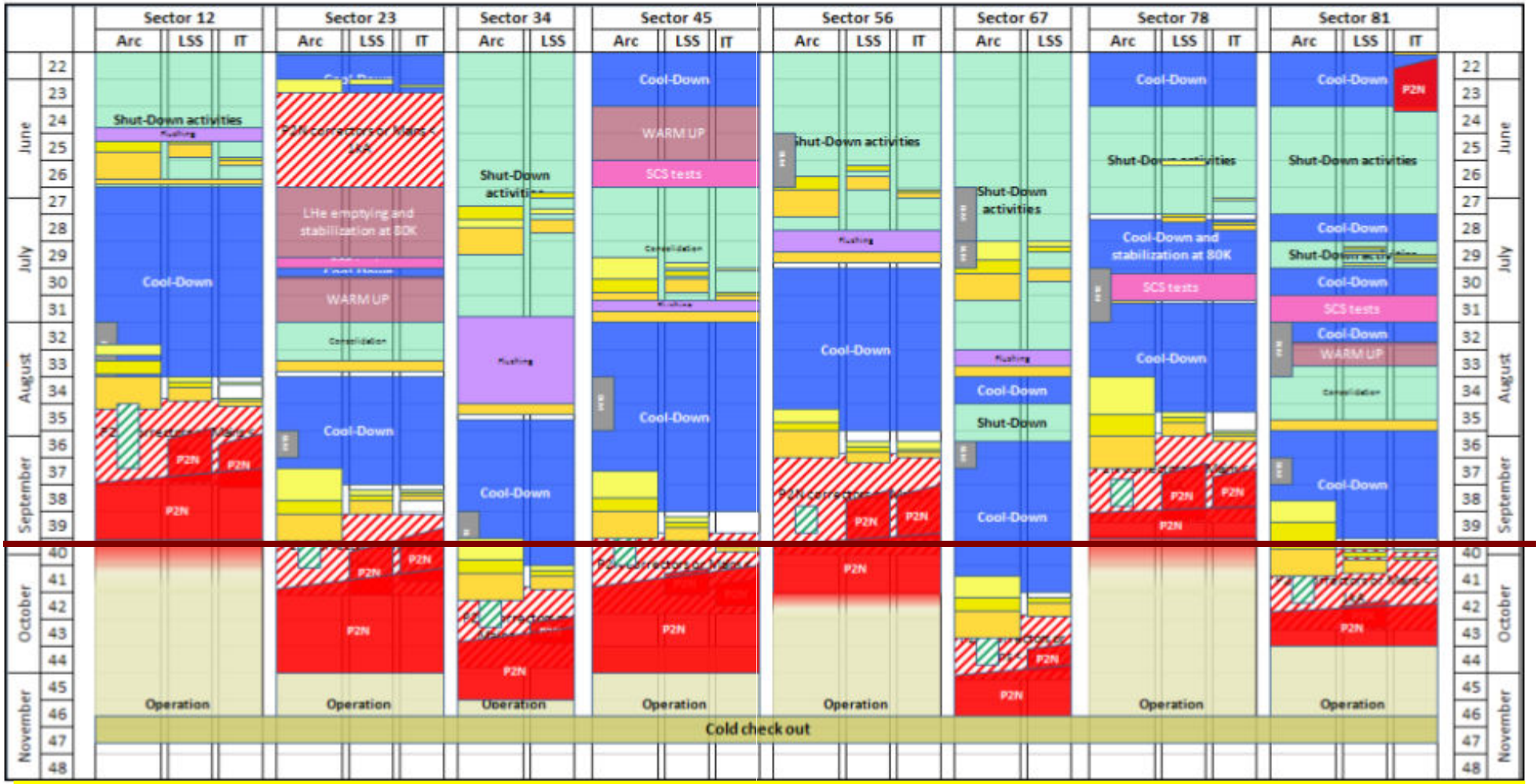

ATLAS
V. Reale


ALICE
P. Jacobs


LHCb
S. Blusk

CMS 1st Closure at LHC: After 15 Years

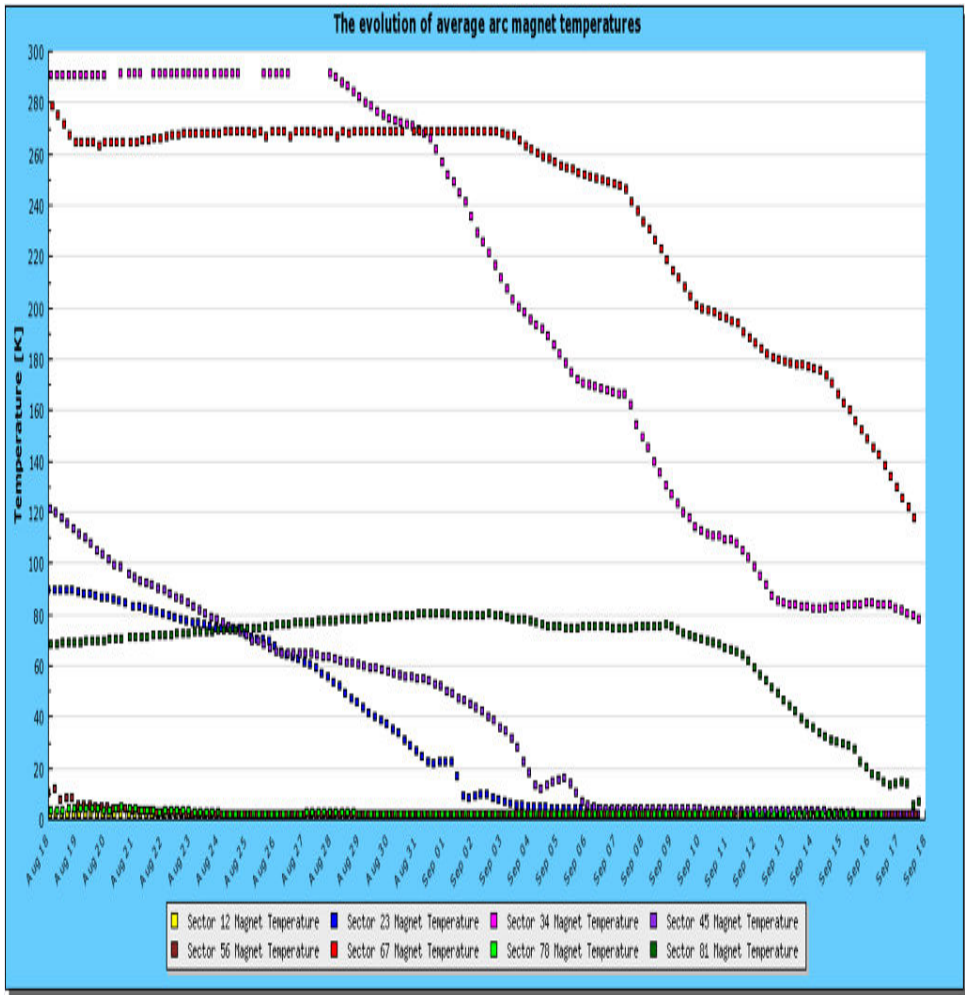
Updated LHC Schedule

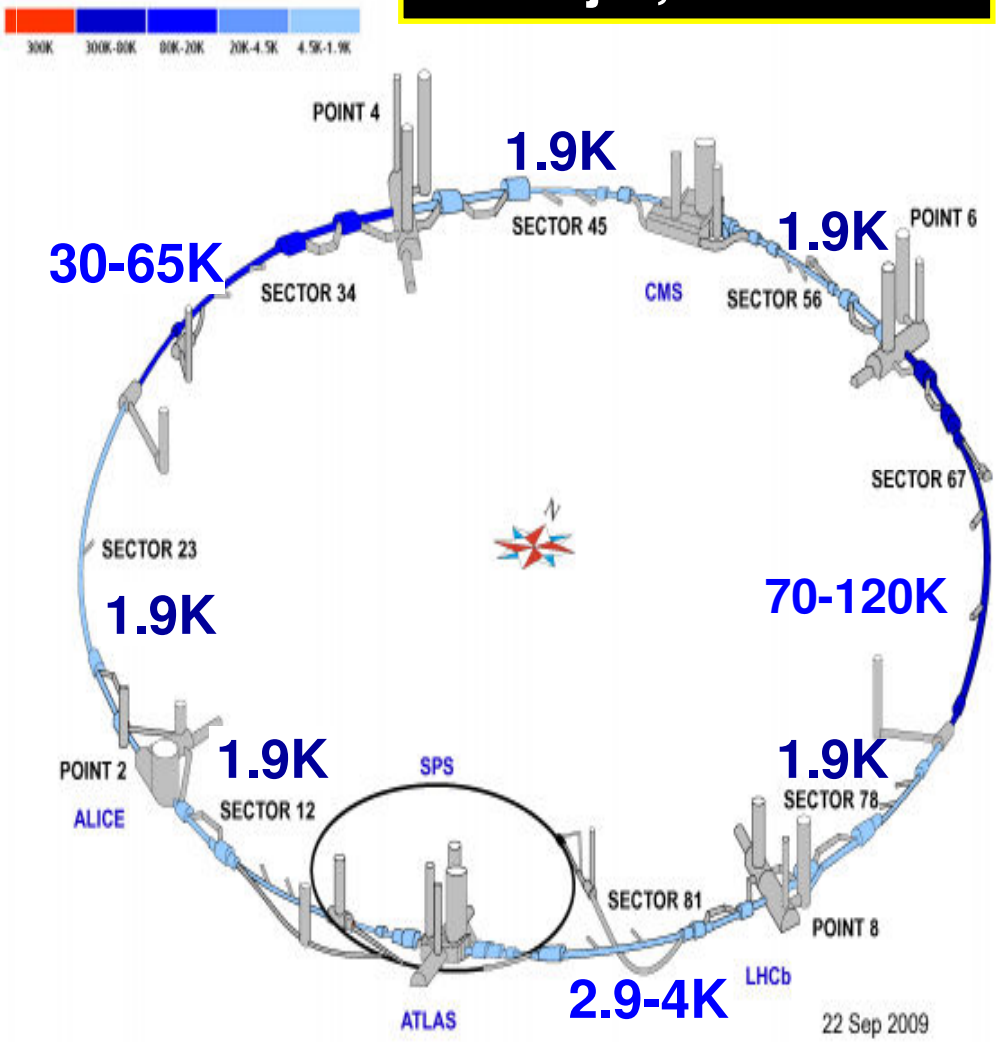


Only 3 Days of Delay Since July 22

LHC Cooldown

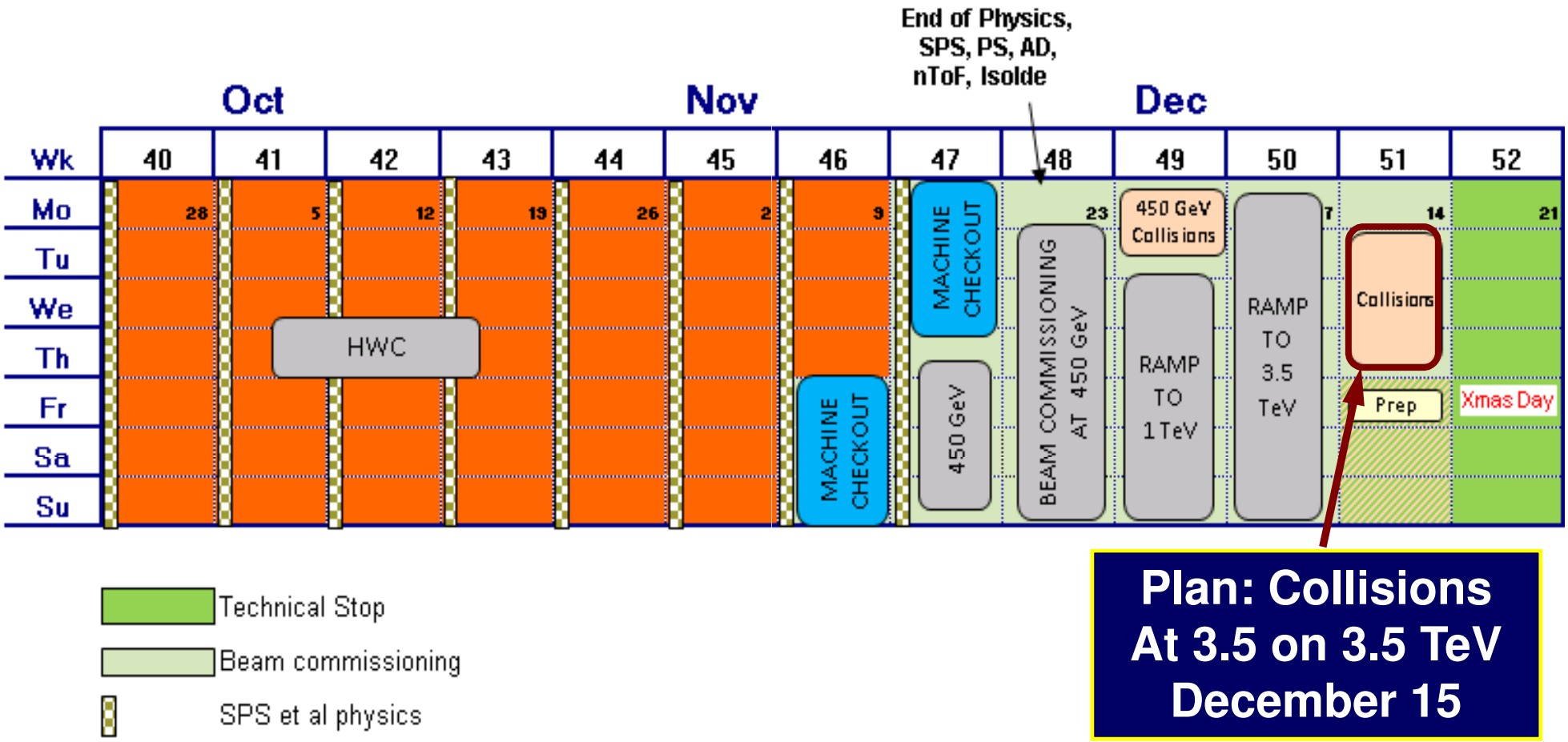
M. Pojer, G-L Sabbi





5 Sectors Cold; 3 Sectors On the Way: Phase II Power Tests

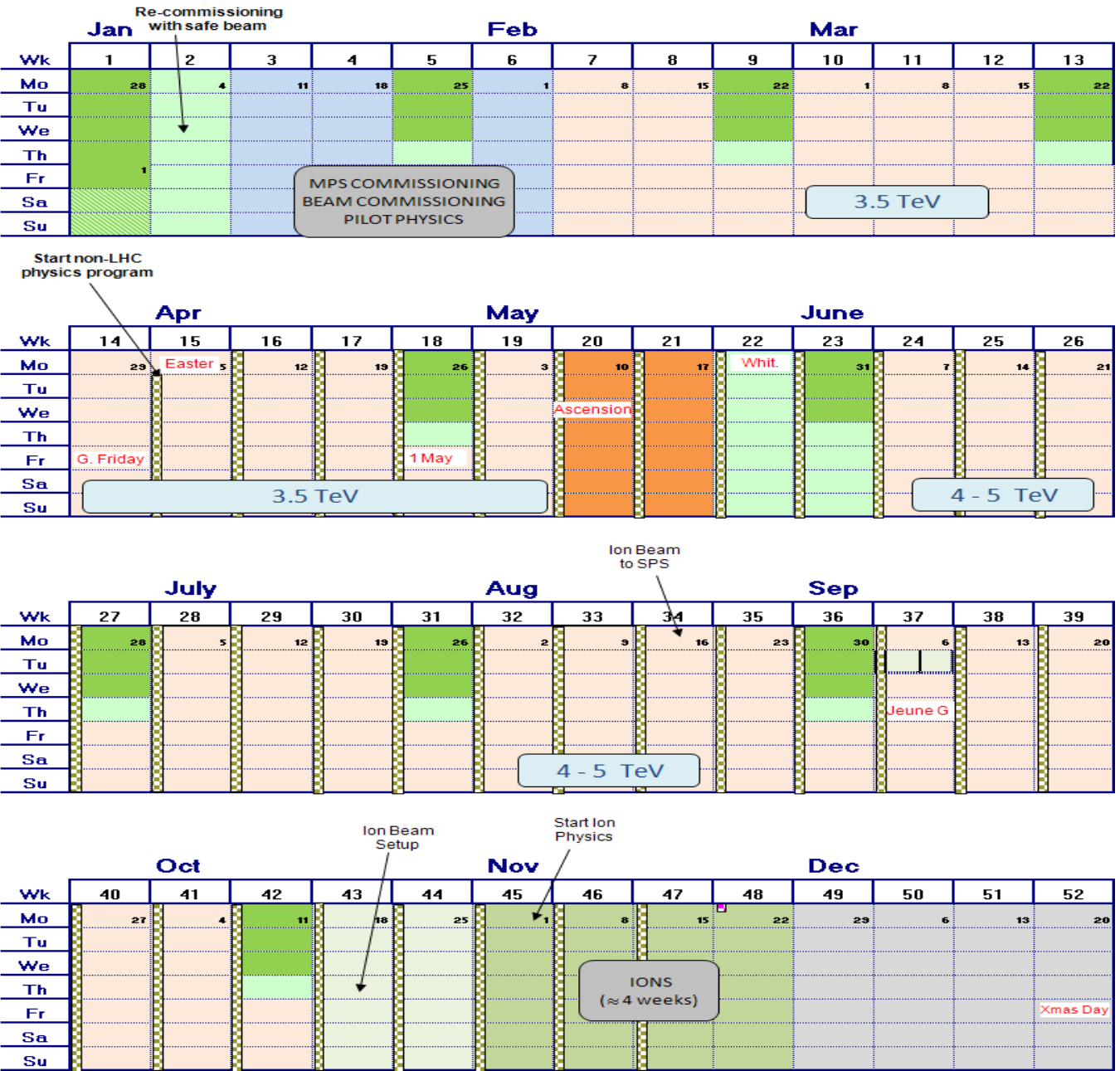
LHC 2009 (M. Lamont)



Plan: Collisions At 3.5 on 3.5 TeV December 15

- **All dates approximate…**
- **Reasonable machine availability assumed**
- **Stop LHC with beam ~19th December 2009, restart ~ 4th January 2010**

LHC 2010 – very draft



- 2009:
  - 1 month commissioning
- 2010:
  - 1 month pilot & commissioning
  - 3 month 3.5 TeV
  - 1 month step-up
  - 5 month 4 - 5 TeV
  - 1 month ions

With luck: Collisions at 3.5+3.5 TeV by Christmas

200-300/pb in 2010

US LHC Users Organization (US LUO)

http://www.usluo.org

- Constitution (Goshaw, HN) approved by US CMS, US ATLAS, US ALICE and LARP April 2007
  - Positive feedback: from the community & agencies (Orbach)
- Mission Statement: Adapted to an International Program

  "*The purpose of USLUO is to provide a forum for discussions of the US participation in the LHC research program, with a focus on how best to enhance scientific participation in the discoveries* expected from this research. In particular, USLUO aims *to help the US LHC community work effectively with their colleagues at CERN while in the US, and to adapt to work at CERN and to living in the environs of the CERN laboratory.* USLUO also *provides communication channels between scientists working on LHC experiments, the US agencies supporting this research and the US Congress.*"
- Represents the entire community: University and Lab
  - Covers the LHC experiments and LARP (accelerator group)
  - Forum for information and concerns; special "int'l" needs
  - Annual US HEP visit to Washington (*Funding*)

US LUO Executive Committee Membership (2 Year Terms)

Name	Institution	Collaboration	Term Expires
Harvey Newman	Caltech	CMS	2009
Chair for 2009			
Julia Thom	Cornell	CMS	2010
Secretary in 2009-10			
Mike Albrow	Fermilab	CMS	2009
Michael Barnett	LBL	ATLAS	2009
Bob Clare	UC Riverside	CMS	2009
Sridhara Dasu	Wisconsin	CMS	2010
Dan Green	Fermilab	CMS	2010
John Huth	Harvard	ATLAS	2010
Boaz Klima	Fermilab	CMS	2010
Greg Landsberg	Brown	CMS	2010
Peter Limon	Fermilab	LARP	2009
Sheldon Stone	Syracuse	LHCb	2010

- Ex-Officio [Youth, Gender, Exp. Balance]: Y. Maravin, K. Copic, P. Jacobs

Totals: CMS 8+1, ATLAS 2+1, LHCb 1, LARP 1, ALICE 0
+ Darin Acosta (ACCU), Jen Nahn (Webmaster)

US LHC Challenges and Response: Analysis & Operations in/from the US

- Participating in the LHC experiments & doing analysis in the US continues to present challenges
  - Distance from the experiment: long travel times
  - 6-9 Time Zone difference: many meetings at CERN at difficult-to-impossible times for US participants
  - Financial issues: exchange rate; cost of living; *taxation*
- Increased presence at CERN during startup: greater financial pressures on the program
  - COLA support for detector & commissioning work at CERN; now also needed for postdocs and students on analysis
- Multi-pronged strategy: Support at CERN, coherence through US Centers (LPC, SAC), greater reliance on collaborative tools
  - Support for "remote operations": e.g. Fermilab ROC, CMS Centres
  - Adequate support for scalable Collaborative Tools (EVO)
- Pro-active US CMS and US ATLAS Management

US LUO 2008-9 Activities

- **Washington Visits (March 2008, April 2009)**
  - Coordinated visit with FNAL and SLAC Users Organizations
- **Annual Fall Meetings**
  - Thanks to our host LBNL; and Fermilab for the 2008 Meeting
  - Poster session (With thanks to S. Dasu): Select young people to join DC Trip; 2009 Winners: Mike Anderson, Len Apanasavich, Yu Zheng
    - 2010 Trip Winners Selected Today
- **Media Training**
  - Professional training for scientists on how to talk to media
  - Thanks to Katie Yurkewicz, Elizabeth Clements
- **Outreach about LHC**
  - Work actively with existing programs: (QuarkNet, US LHC Programs)
  - Barnett started student reporter visits to CERN
    - Reporting back to their schools; getting their community excited about LHC

US LHC and HEP Issues

- **Funding our Research:** both universities and lab groups need increased funds to exploit the science opportunities
  - Years of attrition have brought many of our best groups to the brink; due to high living costs overseas (exchange, COLA), plus inflation
  - Graduate students have filled the pipeline; LHC delays are a real issue
  - Not being able to take on new students, at the time of peak scientific opportunity and public interest, threatens the viability of our field
    - Both within: students go to other fields
    - And without: support from Congress requires us to *educate and continuously engage with the young in our research*
- It is not true that there are "enough" members of the US LHC (and possibly the HEP) Community
  - Witness: lack of manpower for SLHC R&D, design, development, physics studies, dealing with key technical issues
  - Lack of focus on a future energy-frontier program (cf. ILC)
- **University/Lab Partnership:** Strong support of our Universities is a requirement, if we are to maintain Congress' support

FNAL UEC, SLAC SLUO, vs USLUO

US LUO: Broad base

- But outside host laboratory membership
- We represent US LHC membership, not CERN interests

Funding is an Issue

- UEC and SLUO business supported by the FNAL and SLAC management agency discretionary funds
- How does this impact our activities ?
  - Washington visits
    - Major problem: Gov't funds cannot be used
    - Some funded by DPF in 2008-9, FRA and SLAC contributed; others from University funds
  - Annual meetings (2008: FNAL; 2009: LBNL)
    - Help from the Lab hosting the meeting
  - Outreach
    - For the moment within the individual experiments

USLUO Funding in Future

Goodwill-based funding cannot be guaranteed in future

- Washington visit funds are a major problem, as gov't funds cannot be used for lobbying
  - 2008 partially funded by DPF, and the remaining from University funds
  - 2009 visit: concerted efforts by Harvey resulted in ~$5K from DPF (young people), FRA (older), Stanford (ATLAS members) + Harvard, Caltech

Proposal for the future

- Solicit funds from membership? (Fees or Voluntary) $20,000 is sufficient per year [$ 25 Annual Fee]
- Will there be support from the community?

- In any case coordinate with FNAL & SLAC UECs

US ALICE Representation in LUEC

- In the past we have appointed ad hoc (observer) members of LUEC to improve our age, gender and experiment "balance"
  - Katherine Copic and Yurii Maravin selected by ATLAS and CMS respectively for 2008-2009
- US ALICE has requested representation on LUEC, and has suggested that our election rules be changed
- In discussions among LUEC members, we reached a consensus that we need to be inclusive, with all LHC experiments having a voice.
- Opinions on whether our election rules (and hence our constitution) should be changed are divided.
- We then reached consensus on the following procedure
  - Appoint an ad hoc US ALICE representative: Peter Jacobs selected
  - ➡ Discuss the matter of constitutional change.
    - *If justified*, put the matter to the US LUO membership

➡ Note: ad hoc members do not have a vote, but US LUEC works by consensus


2009
HEP DC Visits
270 Offices in 2007
150 Offices in 2008
200 Offices in 2009
R. Clare's Talk

Discussions at OMB with Mike Holland

- Agency budgets for FY10 are going to show a flattening, due to the partial effect of the Stimulus funds that also offload some other costs in FY10.
  - Indeed FY10 budget out in May shows that flattening [Also for LHC; but then there were small increments]
  - Then in FY11, the growth path to doubling the NSF and DOE/SC budgets will resume, likely (said Holland) "for the next 5-6 years".
- A wild card is ITER. Holland said the project was "sold" to everyone before the degree of complexity and associated costs were well-understood.
  - DOE signed on for $ 1.1B but the costs are ballooning rapidly. Now it looks like the cost to DOE might go to $ 2.4B.
  - That would put pressure on other programs at the Office of Science.

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 (some 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 went out: ARRA/ARI (one per campus), MRI (Many universities responded)
- New programs targeting young investigators …
  - Initially delayed by increased administrative (reporting) burdens at the agency.

News on Money Flow At DOE OHEP

- 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 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

"April" APS Meeting (Feb. 13-18) in Washington DC: An Opportunity

Sign Up to Give a Talk at the APS !

- Many interesting sessions (and *first LHC Data*)
- An excellent opportunity for students & young postodocs
- Get your trip funded
- *Take the occasion to visit with Congress and Agencies*
- Abstracts are due October 23

Sessions (DPF, FIP, DAP, Others)

- Energy Frontier at the LHC
- Towards the Proton Intensity Frontier
- Testing the SM; Beyond the SM
- Neutrino Mixing Angles; Neutrino Astrophysics
- State of Heavy Flavor
- "Keys to Success in Global Collaborative Physics Projects"
- Plus News from Fermi, on UHECR, LIGO, DM Searches, Cosmology, Entanglement, …

Purpose: Increase understanding of how to effectively communicate through the media

Subjects covered:

- How the media works and what makes news
- Importance of preparing for media interactions
- Key messages, analogies and sound bites, and their use in interactions with media
- Interviewing methods and strategies
- Where to go for assistance

- **Past in-person sessions:**
  - **At CERN November 2008 and February 2009**
    - **3-hour sessions for up to 20 people**
    - **Presented by Katie Yurkewicz, Fermilab/US LHC**
    - **Well received by attendees**
  - **At DPF meeting July 2009**
    - **1.5-hour seminar presented by Kathryn Grim, Fermilab**
  - **CERN also organizes trainings several times a year, presented by outside contractors (sign up through EDH)**

- Upcoming in-person sessions:
  - At CERN Oct. 16 and Nov. 11 (K. Yurkewicz)
  - At Fermilab this fall (Elizabeth Clements)
- On-line at www.uslhc.us/mediatraining
  - Site to be updated with more/better content by mid-October

➡ We are looking for additional opportunities to give trainings in the U.S. Contact katie@fnal.gov to add a training session

- ✸ Previous Sessions Have Been Well-attended
- ✸ Attendees Found the Sessions Very Useful
- ✸ There is Still Room – You Are Welcome to Sign Up !

CERN Users Org and USLUO

"**ACCU** is the forum for discussion between the CERN Management and the representatives of CERN Users to review the practical means taken by CERN for the work of Users of the Laboratory."

USLUO has "a focus on how best to enhance scientific participation in the discoveries expected from [LHC] research. … help the US LHC community work effectively with their colleagues at CERN while in the US, and to adapt to work at CERN and to living in the environs of the CERN laboratory. USLUO also provides communication channels between scientists working on LHC experiments, the US agencies supporting this research and the US Congress."

US ATLAS and US CMS Managements also work to assist their users: the issues discussed by ACCU can be collaboration matters, or US LUO matters. Partly by agreement, partly because of who has the funding.

See D. Acosta's Talk

List of Top CERN User Concerns
[from Acosta (ACCU) and Barnett (LUO)]

1 – CERN hostel: availability & responsiveness
2 – Cars and shuttle service ("Navettes") to get to the sites
3 – Parking (Lack of space)
4 – Conference rooms and videoconferencing
5 – Safety and security policies: availability of courses
6 – Availability of office space and transient workspace
7 – Access to childcare
8 – General infrastructure: Poor conditions of some buildings
9 – Restaurants: Lack of space
10 – Accessing host countries: Carte de Legitimation, etc.
11 – Access to the site: Contracts, cards, computer accounts, etc.
12 – Ombudsperson Initiative [Equal Opportunity for Users, Staff]
13 – Computing Problems for US Users

USLUO Webpage Features September 2009 Snapshot

home | usluo registration | constitution | congressional contacts | relocation guide for cern | discussion board | executive committee | news archive

you are here: home

navigation

- Home
- USLUO Registration
- Constitution
- Congressional Contacts
- Relocation Guide for CERN
- Discussion Board
- Executive Committee
- ACCU News
- News Archive
- Tax Info Sept 2009

USLUO

Users Meeting

The second annual USLUO Users Meeting is coming up September 25-26, 2009 at Lawrence Berkeley National Lab.

US Swiss Taxation - Event Tues 22 Sept at Hotel Intercontinental in Geneva

The American International Club has organized this event - 17:30-19:30.
Sign up and other information here.

Election Results

The following candidates were elected to serve for two years (2010-2011) on the Executive Committee for the US LHC Users Organization (USLUO):

Congratulations to the new members and thanks to returning committee members.

Further Updated Tax Information

Following the town meeting that took place in Vaud on August 31 2009 with experts on US taxes for US citizens and green card holders living in Switzerland, the experts provided two files giving a summary of the issues and tax obligations. These can be accessed here:

General Tax Information

Q and A from 31 August Meeting

The files were accompanied by the following statement:

"This compilation was put together by our member, Susan Stuber, based on these two tax information meetings as well as interviews and correspondence with, chiefly, Geoffrey DeHaven. It is meant as a guideline to your most pressing questions; if you desire further information, there are footnotes to guide you to the relevant web links. At the end of the day, however, you will be well-advised to have a tax advisor who is versed in U.S. tax regulation."

A podcast of the meeting also is available.

With Many Thanks to J. Nahn

Welcome Center

A Resource for CERN Newcomers

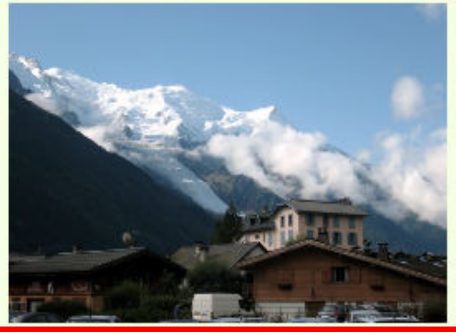
June 7, 2009

- children
- culture
- dining
- finance & legal
- getting installed & connected
- health
- housing
- jobs
- language & education
- leisure & activities
- links
- moving logistics
- news & information
- shopping & services
- tips for spouses
- transport & mobility
- visas & identification

Welcome to our Newcomer's Resource Guide

Being relatively new to CERN, Switzerland and France we have experienced the excitement and challenges of orienting ourselves and integrating into a new environment. During this demanding and often time-consuming process we have found every bit of information on how to "survive and thrive" invaluable. We hope this online resource guide will help you integrate, cope with differences and overcome the challenges associated with moving to a foreign country.

On this site, you will find a collection of information including links from official sources like CERN, as well as a range of useful materials and tips gathered by individuals who wanted to share their know-how. We would like to encourage you, as you are going through the site, to update us on any information that you feel is missing or any tips that you would like to share with this community.



Upcoming Events

Welcome Meetings

Please join us on the 1st and 3rd Thursday each month from 10am-12pm in the CERN Women's Club 'coffee morning room' in the Restaurant 2 building to ask questions and meet new people.

Next meeting: June 18th!

CERN Links

CERN Human Resources Department

Information on coming to CERN and living in the area.

CERN Users' Office

Information for CERN Users on all aspects of coming to CERN and living in the area.

Newcomers Guide

How to Survive and Thrive

- At CERN
- In Switzerland
- In France

- *Taxes*
- Childcare
- Finding Housing
- Schools
- Learning French
- Visas; Residence Permits
- Getting a Bank Account
- Paying Bills
- Exchange Rates
- Culture, Dining
- Whole Experience

Health Insurance and Taxes

Both are complicated issues:

Health Insurance

- Many different plans from multiple institutions.
- CERN plan is expensive and not always available.
- Progress in finding plans to cover gaps in insurance.
- Long Term Employees: Disability, Soc. Security, etc.
  (CERN rules: provide "equal" coverage)

Taxes

- People live in France and Switzerland.
- People receive salaries and COLAs from US
  or CERN team accounts.
- People have different visa status, marital status
- US Tax Laws (+ Reporting Regs.) Have Tightened Considerably

Information on US Taxes: Attention Req'd
For a Summary, see www.usluo.org

Tax Information for Americans and Green Card Holders Living in Switzerland

Issues	General comments & information
Who must file	All U.S. citizens and green card (GC) holders abroad. The majority is presently non-compliant, in the belief that they should only be taxed where they live.
Non-compliance	The "old" approach of ignoring the problem is not a viable solution. Now it is not a matter of "will the IRS find me," but "when the IRS will find me," such as with the renewal of a passport, or from a list obtained from the embassy, or a club.
What income needs to be declared?	The annual gross income, which triggers a filing requirement, depends on your age and your marital status, among other things. For ex., the personal exemption for an under-65 married individual who is not the head of the household is $3,500*. See table 1-1 below. Income resulting from a real estate rental or sale of stock is also in this category. All income is taxable *unless specifically exempted* by U.S. tax law. This includes, for example, Swiss child allowances.
Double taxation	U.S. citizens and GC holders effectively face taxation in both the country of residence and the U.S., collectively paying the higher of the U.S. or the foreign tax on each type of income. The U.S. is the only industrialized nation that practices taxing its citizens based on nationality, rather than residency. In order to alleviate the situation somewhat, the U.S. has tax treaties with individual nations, including Switzerland, wherefrom the foreign tax credit.
Foreign Tax Credit	This is the income tax paid to any foreign country on income earned or investment income received in that country.
Foreign Earned Income Exclusion	You can exclude the first $87,600* of foreign earned income from U.S. tax, but you still have to file a tax return[1]. Many people assume that because they're under this threshold they don't have to file. The FTC and the FEIE accomplish the same thing (reducing US tax due), albeit by a different process.
Domiciliary states	Some states, like MA, VA, NJ and MD are domiciliary states; if you are a re… then m… *for all …*
FBAR	In addit… the For… foreign … includin… is requ… $10,000… for free… time co… records… have to… U.S. do… year. Th…

[1] Form 2555

Tax Information for Americans and Green Card Holders Living in Switzerland

Issues	General comments & information
	caused not a few red faces. Careful: if you have two or three accounts, and the IRS can prove that is was a willful violation, it can cost you up to 50% of the account balance, or $100,000 depending. If it is criminal, it can be up to $500,000 and ten years in prison. See www.irs.ustreas.gov.
Bank accounts	Whether a bank account is in the U.S. citizen's name or in the non-U.S. citizen spouse's name, if the U.S. citizen *has access* to that account, *uses a credit card on that account, or has power of attorney to that account*, it must be declared if all foreign financial accounts exceed $10,000. This includes any assets such as stocks, bonds, and mutual funds.
Foreign mutual funds	Anyone who holds foreign non-US registered mutual funds has special filing requirements and likely needs professional assistance, at least initially, to understand the compliance issues. Failing to file[2] can result in a minimum $10,000 fine *per form per year*.
Capital gains	The IRS (Internal Revenue Service, U.S. tax authorities) taxes all U.S. citizens and GC holders on capital gain, *no matter where it comes from, even if it is exempt* in the foreign country where it was acquired.
Pension funds	When you pay into a Swiss pension fund voluntarily as a form of savings, you will have to pay taxes on this in the U.S. The IRS does not recognize these as retirement accounts. They are treated as an ordinary investment account, income earned in them must be declared every year. You can avoid potential problems by making certain provisions. Pension funds which you have through your foreign employer are not taxed directly, but depending on how they are declared can make a significant difference in how much tax you pay in the end.[3] A tax expert versed in this field is strongly advised.
Real estate	If, for example, a home is in the name of the non-American spouse but it was obtained using community property funds, the home may thus be

The "old" approach of ignoring the problem is not a viable solution. Now it is not a matter of "will the IRS find me", but "when the IRS will find me", such as the renewal of a passport, or from a list obtained from the embassy, or a club.

Amnesty extended to October 15 (if you paid the taxes)

Information on US Taxes: Q & A

Democrats Abroad Switzerland
Meeting on US Taxes for Americans living and working overseas
31 August 2009, Lully (VD) Switzerland

YOUR QUESTIONS ANSWERED

Who has to file taxes in the US?

1. a) An American citizen who has no ties with the US as far as accounts, property, etc., and married to a Swiss person, can the filing status for the American be: married filing separate return? Yes. Or do they need to include their spouse? If it is more beneficial, a once in a life time election can be made to allow the non US person to file jointly with her US citizen spouse. Then the non US spouse would file jointly for future years, unless revoked either through death, divorce or revocation of the election.

   b) When this same American is not working do they need to fill out a tax return? If gross income reaches the personal exemption amount (currently $3,500), a spouse filing "married filing separately" would need to file. For other filing status there is a different threshold.

Have a look at the info. You are well-advised to consult a tax expert with relevant experience, if you are affected

Table 1-1. **2008 Filing Requirements for Most Taxpayers**

IF your filing status is...	AND at the end of 2008 you were...*	THEN file a return if your gross income was at least...**
single	under 65	$ 8,950
	65 or older	$10,300
married filing jointly***	under 65 (both spouses)	$17,900
	65 or older (one spouse)	$18,950
	65 or older (both spouses)	$20,000
married filing separately	any age	$ 3,500
head of household	under 65	$11,500
	65 or older	$12,850
qualifying widow(er) with dependent child	under 65	$14,400
	65 or older	$15,450

* If you were born on January 1, 1944, you are considered to be age 65 at the end of 2008.
** Gross income means all income you received in the form of money, goods, property, and services that is not exempt from tax, including any income from sources outside the United States (even if you may exclude part or all of it). Do not include any social security benefits unless (a) you are married filing a separate return and you lived with your spouse at any time during 2008 or (b) one-half of your social security benefits plus your other gross income is more than $25,000 ($32,000 if married filing jointly). If (a) or (b) applies, see the instructions for Form 1040 or 1040A or Publication 915 to figure the taxable part of social security benefits you must include in gross income.
*** If you did not live with your spouse at the end of 2008 (or on the date your spouse died) and your gross income was at least $3,500, you must file a return regardless of your age.

2. Approximately how much would the tax obligation be to the US government in the case of an American married to a Swiss, filing as "married filing separately", who earns CHF 150'000 per year and pays between 25-35% to the Swiss Government? This would depend on particular facts and circumstances involved, if additional exemptions can be claimed for dependent US citizen children and non US spouse as well as if there investment income being taxed at lower rates in Switzerland or not at all and whether there are itemized deductions that can be claimed. Paying 25% tax rate to Switzerland would likely result in no or very little US tax due.

. If you have both Swiss and American citizenship, are you required to pay US tax if you are employed in Switzerland as a Swiss citizen? You are required to file. This does not necessarily mean there will be tax due.

. How interest and capital gains earned in Switzerland is treated. Are they considered taxable in the US? Yes. The US taxes US citizens/green card holders on a world wide basis. If Switzerland does not tax such amounts, they would nonetheless still be taxable by the US.

US LUO and NUFO

- **US LUO is glad to have joined NUFO**
  - **We can benefit from NUFO's experience and breadth, spanning many fields**
- **We are grateful to NUFO for changing its charter to accommodate us as users of an overseas int'l facility**
- **We look forward to developing our message with them: the key to success is the university-laboratory partnership**
  - **Resonates well with the agencies and Congress**
  - **Leading to an even more productive scientific community**
- **Our growing experience in a worldwide collaboration, and our work in the US and overseas at CERN, is greatly appreciated**

US LUO
The Road Ahead

- ***LHC's leap in energy and luminosity present the greatest discovery opportunities our field has seen in the last 25 Years***
  - Great physics potential in the first data: Higgs, SUSY, Z', l*, etc.
- ***We Are Eagerly Awaiting First Physics This Fall***
  - CMS and ATLAS experiments are Ready; Also ALICE and LHCb
  - Detectors, DAQ, Computing & Software in place, being exercised
- **US physicists have learned to work very effectively**
  - As an integral part of their experimental collaborations
  - And as a major nat'l community in a truly global enterprise
- **We must be ready to exploit an expanding physics horizon**
  - As we ramp up to full luminosity by ~2013
  - And move beyond it at SLHC within ~5 years.
    Planning and R&D are already underway.
- **We will build an exciting future as the physics unfolds**
- ***US LUO is There to Help***

Extra Slides Follow

LHC 2009-10: Numbers, with a step in energy (Lamont)

Month	OP scenario	Max number bunch	Protons per bunch	Min beta*	Peak Lumi	Integrated	% nominal
1	Beam commissioning						
2	Pilot physics combined with commissioning	43	3×10^{10}	4	8.6×10^{29}	~200 nb^{-1}	
3		43	5×10^{10}	4	2.4×10^{30}	~1 pb^{-1}	
4		156	5×10^{10}	2	1.7×10^{31}	~9 pb^{-1}	2.5
5a	No crossing angle	156	7×10^{10}	2	3.4×10^{31}	~18 pb^{-1}	3.4
5b	No crossing angle – pushing bunch intensity	156	1×10^{11}	2	6.9×10^{31}	~36 pb^{-1}	4.8
6	Shift to higher energy: approx 4 weeks	Would aim for physics without crossing angle in the first instance with a gentle ramp back up in intensity					
7	4 – 5 TeV (5 TeV luminosity numbers quoted)	156	7×10^{10}	2	4.9×10^{31}	~26 pb^{-1}	3.4
8	50 ns – nominal Xing angle	144	7×10^{10}	2	4.4×10^{31}	~23 pb^{-1}	3.1
9	50 ns	288	7×10^{10}	2	8.8×10^{31}	~46 pb^{-1}	6.2
10	50 ns	432	7×10^{10}	2	1.3×10^{32}	~69 pb^{-1}	9.4
11	50 ns	432	9×10^{10}	2	2.1×10^{32}	~110 pb^{-1}	12

US LUO Executive Committee Membership (2 Year Terms)

Name	Institution	Collaboration	Term Expires
Julia Thom	Cornell	CMS	2010
Secretary in 2009			
Kevin Burkett	Fermilab	CMS	2011
Sarah Demers	Yale	ATLAS	2011
Sridhara Dasu	Wisconsin	CMS	2011
Sandor Feher	Fermilab	LARP	2011
Al Goshaw	Duke	ATLAS	2011
Dan Green	Fermilab	CMS	
John Huth	Harvard	ATLAS	2010
Boaz Klima	Fermilab	CMS	2010
Greg Landsberg	Brown	CMS	2010
Sheldon Stone	Syracuse	LHCb	2010
Harvey Newman	Caltech	CMS	2011
Chair for 2009			

- Ex-Officio for Youth, Gender, Exp. Balance: Yuri Maravin, Katherine Copic, Peter Jacobs

Totals: CMS 7+1, ATLAS 3+1, LHCb 1, LARP 1, ALICE 0+1
+ Darin Acosta (ACCU), Jen Nahn (Webmaster)

US LUO Issues (2)

- Annual Trip to the Hill and the Agencies in Washington
  - Volunteer ! Young people are most effective
    - Experience also counts
  - How to sharpen, make our message more effective ? For example: Media training.
  - Mission(s): a Senate advocate for the physical sciences
- Research Vs. Facilities: Keep the balance
- US LUO Funding (DC Trip, Annual meeting; Outreach…)
  - Can we charge dues; if so how much ? (To Discuss); this seems necessary given our past and upcoming struggles
- Taxation
  - New regulations, and a new level of scrutiny for US citizens and Green Card holders abroad
  - Complexities (e.g. 1 US spouse, retirement, estates, etc.): A tax advisor with relevant current experience may be needed

Information on US Taxes: Attention Req'd

Americans and Green Card Holders Living in Switzerland

Issues	General comments & information
Grantor of foreign trust	Trust income is generally taxed to the grantor. If grantor is U.S. citizen he needs to file[5] by March 15 each year.
Businesses or Foreign partnership	If you have a business or partnership abroad, you need to declare. Failure to file the proper form may result in a penalty of $10,000 per year. Professional help is imperative here.
Gift to spouse	Can give unlimited gifts to your spouse if you and your spouse are both US citizens[6]. If you are American and your spouse is a non-American, the 2009 gift tax-free limit is $133,000 a year to your spouse. Above this you will be taxed. Other rules if the gift is appreciated property.
Gift to children	Annual tax-free gift up to $13,000* a year in 2009. Nationality of child plays no role here.
Gift to others	Annual tax-free gift up to $13,000 * a year in 2009. Nationality of receiver plays no role here.
Receiving foreign gift/inheritance	Generally, there is no U.S. tax on receipt of a foreign gift from a non-U.S. citizen. Receiving gifts or inheritance from expatriates is a different matter. [7]
Estate taxes for U.S. citizens and GC holders	A U.S. citizen currently has a $3,500,000 exclusion on which no estate tax is due on his accumulated assets (U.S. and abroad). For GC holders living abroad, they only owe estate taxes on U.S. assets over $60,000.
Estate taxes for U.S. citizens who have expatriated	When an expatriated U.S. citizen or GC holder dies, the beneficiaries, *if they are U.S. citizens*, will be taxed at 45% if the collective value of the estate is over $2,000,000.[8]
Inheritance of U.S. assets from U.S. citizen abroad	This can take months and in some cases years to get the estate settled. Inheritors have to prove to the IRS that no taxes are owed before funds can be unblocked and distributed.
Life insurance	Under circumstances, may be taxed as a foreign investment. To be considered as insurance policy instead of a taxable fund, it must comply with U.S. tax law. Ask your foreign insurance company if they comply (most do not).
IRS serious	Has said it is hiring 1,500 new auditors to go after foreign accounts.
Rewards to whistleblowers	The IRS is offering a bounty of up to 30% of funds obtained as a result of informants who provide the IRS with information concerning non-compliant taxpayers .
Full Voluntary Disclosure Program	If you have an undeclared bank account or income, you may elect to undertake the IRS's "Full Voluntary Disclosure Program". This entails a 20 % penalty on the highest balance of all foreign financial accounts during the previous six years *in lieu of potential criminal prosecution*, plus the tax due, plus interest, plus 20 % penalty on the tax due.
Sept. 23 2009 amnesty	Usual date for filing is June 23. This year the IRS has established an amnesty for those who have not been filing FBAR's and/or other account disclosures.

[5] form 3520-A
[6] may not have future interest or "strings" attached
[7] has caveats. See link http://www.irs.gov/pub/irs-pdf/i8854.pdf (instructions of form 8854)
[8] 2009 limit; changes every year. See also link footnote 7

Tax Information for Americans and Green Card Holders Living in Switzerland

Issues	General comments & information
First time FBAR filer	Write a letter and send along with last 6 years of FBAR's to: U.S. Department of the Treasury, P.O. Box 32621, Detroit, MI 48232-0621, saying you had no idea you had to file. Need to file before extension date of Sept. 23, 2009 (this is date report must be received by Dept. of Treasury, not the postmark date!)
Expatriation (giving up your U.S. citizenship)	If you expatriate or give up green card, you must file for ten years afterwards, and pay an exit tax if your net worth is $2,000,000 or more on the date of expatriation. If you have never filed, you must file for the five years preceding. The amount of the exit tax differs according to facts and circumstances. It depends, for example, on the gain realized on the deemed sale of assets.
IRS general info	Publication 54 http://www.irs.gov/publications/p54/index.html
IRS International Section	http://www.irs.gov/businesses/small/international/index.html

*The numbers mentioned in this compilation are regularly adjusted for inflation, or indexed.

The above information was gathered by Susan Stuber from interviews and information evenings on 31 August and 2 September 2009 with:

Geoffrey DeHaven, MBA, CFP® (US), EA www.USTaxAbroad.com
David Hirsberg, Partner of Withers LLP www.withersworldwide.com
Jonathan Lachowitz, Financial Planner CFP(R) (US and Switzerland)
www.white-lighthouse.com

Please note: The information in this compilation is general in nature. It is meant as a guideline and to make you aware of eventual pitfalls. DACH strongly recommends that you get the support of a tax advisor that is well-acquainted with U.S. tax laws if you decide to take part in the voluntary disclosure program, in the amnesty, or if you are not entirely sure about your pension funds, life insurances, funds, etc.

Temper any conclusions you draw from someone else's situation by taking into account that results may differ because of variables such as marital status, dependents, level of salary or investment income, etc. Clearly, "no one shoe size fits all sizes" when dealing with international tax issues.

This compilation reflects the present tax laws; be aware that these laws will most likely change.

As provided for in Treasury regulations, advice (if any) relating to U.S. federal taxes that is contained in this communication is not intended or written to be used, and cannot be used, for the purpose of (1) avoiding penalties under the U.S. Internal Revenue Code or (2) promoting, marketing or recommending to another party any plan or arrangement addressed herein.

Tax Information for
Americans and Green Card Holders
Living in Switzerland

Table 1-1. 2008 Filing Requirements Chart for Most Taxpayers

Note. You must file a return if your gross income was at least the amount shown in the last column.

IF your filing status is. . .	AND at the end of 2008 you were* . . .	THEN file a return if your gross income** was at least. . .
Single	under 65	$8,950
	65 or older	10,300
Head of household	under 65	11,500
	65 or older	12,850
Married filing jointly****	under 65 (both spouses)	17,900
	65 or older (one spouse)	18,950
	65 or older (both spouses)	20,000
Married filing separately	any age	3,500
Qualifying widow(er) with dependent child	under 65	14,400
	65 or older	15,450

* If you were born before January 2, 1944, you are considered to be 65 or older at the end of 2008.

** Gross income means all income you received in the form of money, goods, property, and services that is not exempt from tax, including any income from sources outside the United States (even if you can exclude part or all of it). Do not include social security benefits unless (a) you are married filing a separate return and you lived with your spouse at any time in 2008 or (b) one-half of your social security benefits plus your other gross income is more than $25,000 ($32,000 if married filing jointly). If (a) or (b) applies, see the instructions for Form 1040 or Publication 915, Social Security Benefits and Equivalent Railroad Retirement Benefits, to figure the taxable part of social security benefits you must include in gross income.

*** If you did not live with your spouse at the end of 2008 (or on the date your spouse died) and your gross income was at least $3,500, you must file a return regardless of your age.

FBAR: Extension of Amnesty Deadline From The New York Times (9/21/09)

Amnesty Deadline Extended for Offshore Accounts

By LYNNLEY BROWNING

The Internal Revenue Service will announce on Monday that it is extending its amnesty program intended to root out those suspected of using offshore accounts to evade taxes. The move comes as a flood of wealthy Americans with secret accounts in Switzerland and elsewhere are coming forward to disclose their hidden assets.

The I.R.S. will give such account holders an additional 22 days, until Oct. 15, to reveal their accounts if they hope to escape stiffer penalties, a government official said late Sunday. After that, the government plans to prosecute those suspected of tax evasion whose identities it learns but who do not come forward.

The so-called voluntary disclosure program, which began in March as a way of luring American clients of the Swiss bank UBS out of the woodwork, has attracted 3,000 taxpayers so far, compared with just 80 last year, the official said. Some of the taxpayers are clients of other banks.

Media Training Sessions for US Personnel

- **Purpose:** To increase participants' understanding of how to effectively communicate through the media
- **Specific Objectives –** By the end of the session, participants will:
  - Have received a general overview of how the media works (radio, TV, print)
  - Be able to explain briefly what makes news and why
  - Be able to define 'key messages' and 'sound bites' in general terms
  - Understand the importance of preparing for interactions with media
  - Have gained clarity on how to successfully present one's work to media
  - Be able to identify components of a successful interview
  - Understand where to go for assistance and resources for dealing with the media as a US LHC scientist
- **Upcoming Sessions**

  In anticipation of increased media interest in the LHC during the period surrounding restart and first collisions, two media trainings are being organized at CERN for US personnel. The half-day trainings will be at CERN October 16 [Limited to 12] and November 11 [Limited to 10] led by US LHC communicator Katie Yurkewicz. To sign up, or for more information, please contact katie@fnal.gov. *[Thanks Katie.]*

In the Public Eye

ANGELS & DEMONS™ Lecture Night
THE SCIENCE REVEALED

MATTER VS. ANTIMATTER

Anti-Tom Hanks

Would look very much like

Tom Hanks

CERN Fermilab U.S. DEPARTMENT OF ENERGY National Science Foundation

List of Top CERN User Concerns
[from Acosta (ACCU) and Barnett (LUO)]

1 - CERN hostel (Area hotels are expensive)

Do they respond quickly ?

When there is a shortage of rooms, do they set priorities correctly ?

2 - Transportation -- cars and shuttle service ("Navettes")

Availability of CERN logo cars.

Transportation to CERN sites.

3 - Parking (Lack of space) Bldg. 42 will be built behind and attached to Bldg 40. Despite a large number of add'l cars expected, no expansion of parking lots is yet approved.

4 - Conference rooms and videoconferencing

Does this work well enough?

5 - Safety and Security Policies

Availability of safety courses

ACCU List (Cont'd)

6 - Office space and transient workspace

Availability of work space

7 - Childcare Access to child care is limited.

8 - General infrastructure

Poor conditions of some buildings

9 – Restaurants: Lack of space

10 - Accessing host countries: Attestation de fonction, etc.

11 - Access control to the site

Contracts, cards, computer accounts, retired users in the area

12 - Ombudsperson Initiative

And equal opportunity: Is there a need ?
Personal issues: stress, harassment

13 - Computing Problems for US users

News from the CERN Directorate
Following the Spring 2009 User Survey
[M. Barnett]

News from the CERN Directorate: Actions following the survey:

1. **You will be able to book the hostel online starting December 2009.**
   It will enable users to:
   - ➡ **Make individual booking up to 48h before arrival**
   - ➡ **Cancel booking (modification possible only via the reception desk)**
   - ➡ **Guarantee reservation with a credit card**

2. **A list of hotels close to CERN with their negotiated rate will be available from the Housing/Hostel webpage very soon (perhaps late September)**

3. **A new Corporate rate with Hertz from GVA Airport.**
   http://www.genevaairport.net/Car-Hire/Avis-Hertz-Desk.php
   (corporate rates will be attributed while presenting CERN card). World-wide corporate rates in negotiation.

4. **Construction is planned for an expansion of Restaurant 1. Drawings are available at:**
http://www.perret.ch/cernrestaurant1/Projet/Archives/Version%20du%2013.07.2009/Low-res/
   - ➡ **Renovation work (½ terrasse). In October and November 2009**
   - ➡ **Construction work between April and October 2010**

ACCU List (Cont'd)

6. A brochure for newcomers will be available in 2010.

7. Evaluation of stable Wifi throughout the CERN site.

A number of studies have been carried out recently on the possibility to deploy wireless everywhere at CERN. The outcome of these studies demonstrate that not only would it require several millions CHF to implement a global coverage but more importantly that the current technologies are not capable of answering the requirement at locations where the population is dense. The service quality offered by the wired infrastructure in offices, recently upgraded, is in any case far better that what wireless could provide. An awareness campaign has started: an article will be published in the next CERN Computer Newsletter, and a new WEB site has been built (http://cern.ch/wireless). The lack of adequate number of network connections at some locations can easily be solved by the use of FANOUTs, available from the CERN stores, which allow the connection of several computers on the same socket.

IT has concentrated its efforts in regularly deploying and improving the wireless coverage in open areas (meeting rooms, restaurants, lobby, etc) and is also deploying more recent and more powerful base stations in building 4, 32, 40, 60, in restaurant #1, in the council chamber, in the main amphitheatre and in the experiments control rooms by first quarter 2010.

LHC Inauguration

Visit of the French PM Fillon and Minister Pecresse

Le CERN et singulierement le LHC constitue la plus grande experience scientifique ce siecle et symbolise l'existence d'une civilisation humaine. (PM Fillon in our Livre d'Or.)

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The Bulletin

Issue No. 37-38/2009 - Monday 07 September 2009

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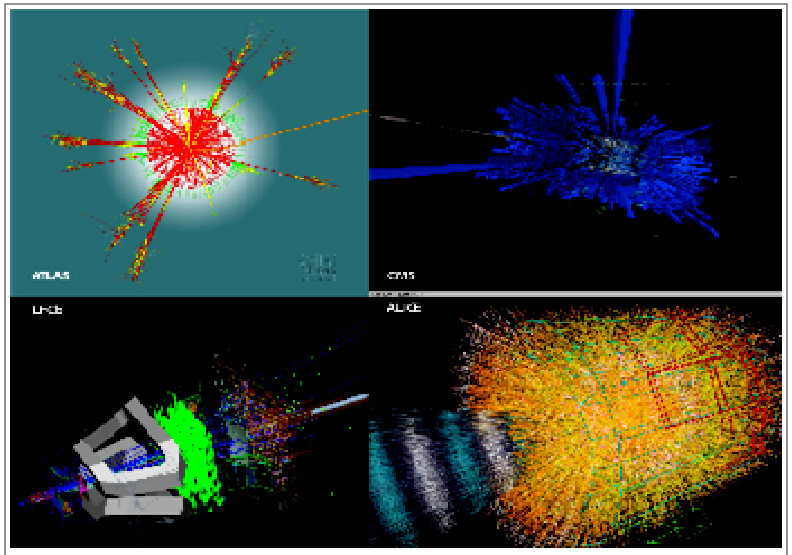
3.5 TeV : a good start!

To the pessimists out there, the 3.5 TeV starting energy of the LHC will be like a half-empty glass. However, the thousands of physicists working at the experiments certainly do not share these feelings. On the contrary, they are as excited as ever since they will be the first to observe what happens to matter in these (still) unprecedented conditions.



Coming soon: the real data!

Although one might think that 3.5 TeV for a machine designed to operate beams at 7 TeV is as frustrating as driving a Ferrari when the speed limit is 60 km/h, physicists working at the LHC experiments see the glass half full: they are now focusing on how to make the best use of this intermediate energy. For them, having the opportunity to test their detectors at non-extreme conditions is rather a

Encouraging CMS Centres Worldwide

- **CMS Centre - what is it?**
  - Information and communications focal point in institute with LHC / CMS displays, Web GUIs, video links, and outreach.
  - Facilitates remote participation and acts as a local focal point for CMS work and outreach, and to improve communications with all CMS collaborators.
- **How is it used?**
  - Sub-detector DQM, calibration, analysis, computing ops, outreach (maybe some remote shifts if running is stable) – DQM, computing
- **Cost: General costs + 2 consoles – about 15 kCHF (In US: $ 7-12k)**

Slides on the 2009 Washington DC Trip Follow

2009 Washington Visit

Participation

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

Organization

- Worked with Fermilab UEC and SLAC SLUO
  - ➡Deep experience; Well oiled machine to set up appointments, …
  - ➡US LUO did an excellent job in spite of being newcomers, complications due to funding ☺

Message to Congress - One-pager and brochure

- ➡ Improved LHC/international collaboration content
- ➡ Pictures …

US LHC USERS ORGANIZATION

US LUO

Our Ask

- 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 yr. life cycle of experiments
- Highlight the LHC

HEP One Pager

High Energy Physics: Training tomorrow's scientists and benefiting society while discovering nature's secrets

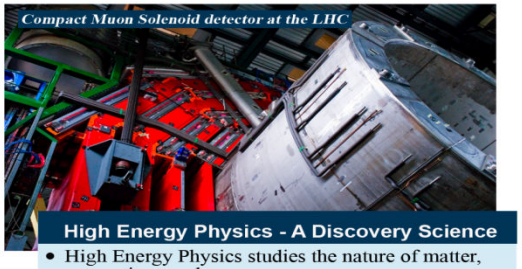
5000 PhDs and students work on High Energy Physics research at over 130 universities and labs spread across 44 states and Puerto Rico.

The Department of Energy's Office of Science and the National Science Foundation facilitate High Energy Physics research.
DOE's Office of Science funds the national labs that provide facilities for university-based High Energy Physics research. The DOE and NSF also fund peer-reviewed university research programs across the country. These programs produce scientists who will tackle tomorrow's problems critical to the nation, including energy science and national security.

High Energy Physics seeks to understand nature at its essence.
Physicists at universities and research laboratories across the country are working to discover new particles and physical laws that will help to explain the origin and nature of the universe. Exciting experiments are in progress at particle accelerators and at astrophysical observatories. One of the most promising avenues for discovery will be found at the Large Hadron Collider (LHC) in Switzerland.

High Energy Physics Research Sites

- Argonne National Laboratory (ANL) in Illinois
- Brookhaven National Laboratory (BNL) in New York
- Fermi National Accelerator Laboratory (FNAL) in Illinois
- Lawrence Berkeley National Laboratory (LBNL) in California
- SLAC National Accelerator Laboratory (SLAC) in California
- U.S. participation in Large Hadron Collider (LHC) near Geneva, Switzerland
- Nearly 100 research universities

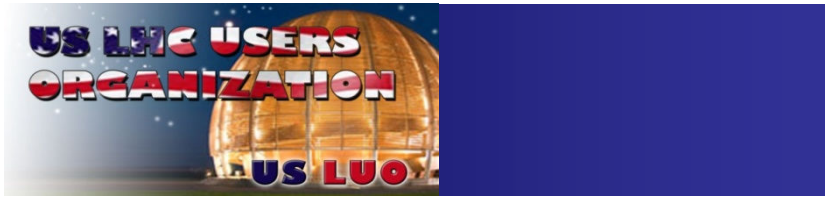


High Energy Physics - A Discovery Science

- High Energy Physics studies the nature of matter, space, time, and energy.
- We look for explanations of dark matter, dark energy, extra dimensions, and the disappearance of anti-matter in the universe.
- The search for answers to these fundamental questions also drives the development of innovative new technologies.

Lead time to develop High Energy Physics experiments is 10 to 20 years.
Like many other technologies, High Energy Physics requires long-term stable funding to reap its benefits. Particle accelerators and detectors first developed for High Energy Physics are now used by every major medical center in the nation to treat and diagnose millions of patients. From the earliest days of High Energy Physics in the 1930s to the latest 21st-century initiatives, the bold and innovative ideas and technologies of High Energy Physics have entered the mainstream of society to transform the way we live. >>

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



- 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?

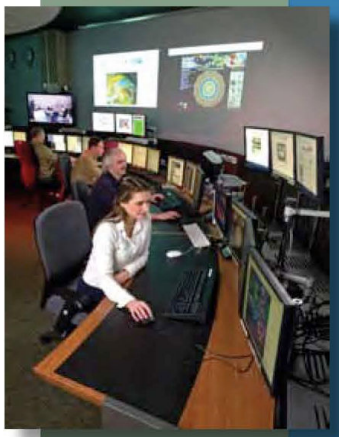
The big questions

Inspiring the Next Generation

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)*.

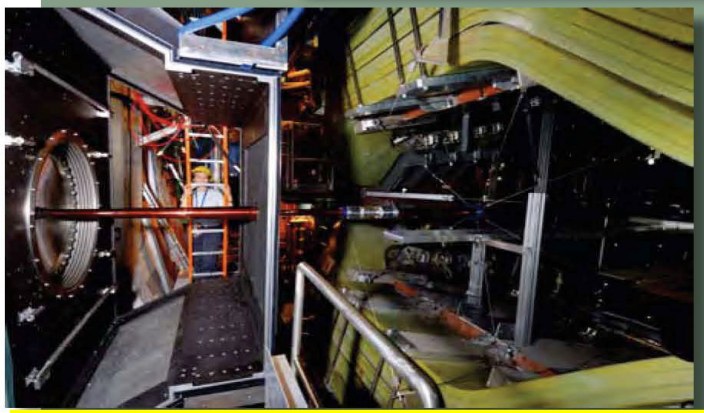
A Worldwide Effort

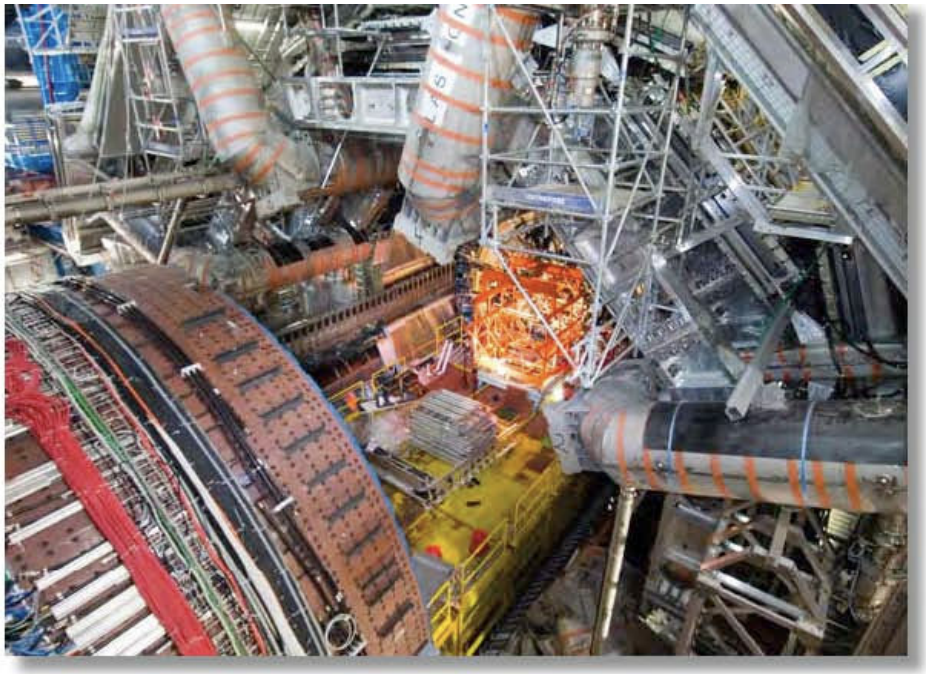
"Without Borders"

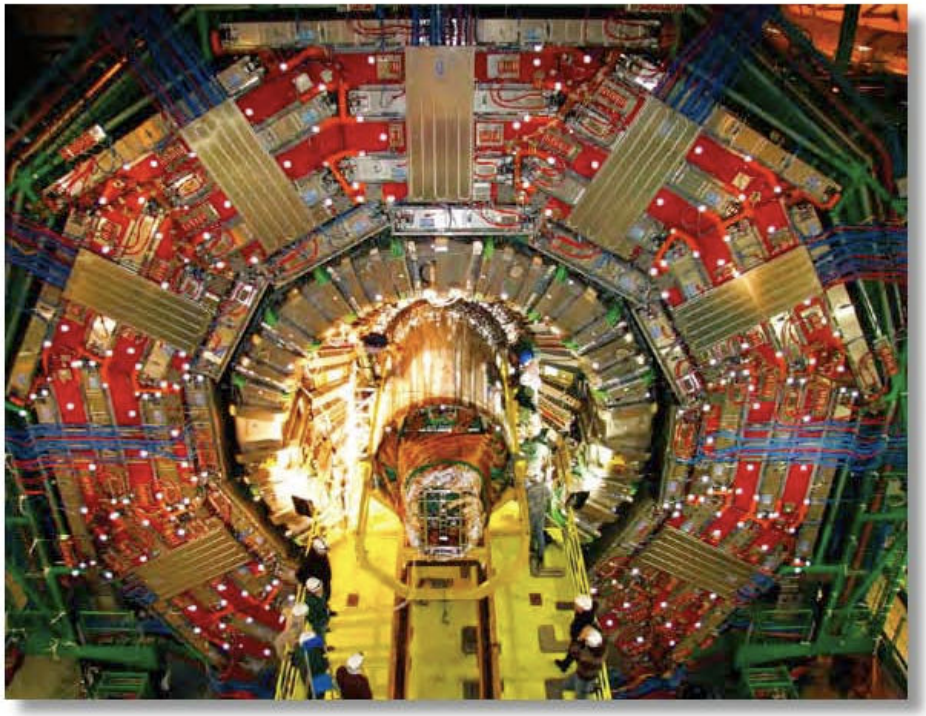
LHC

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 blackhole 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

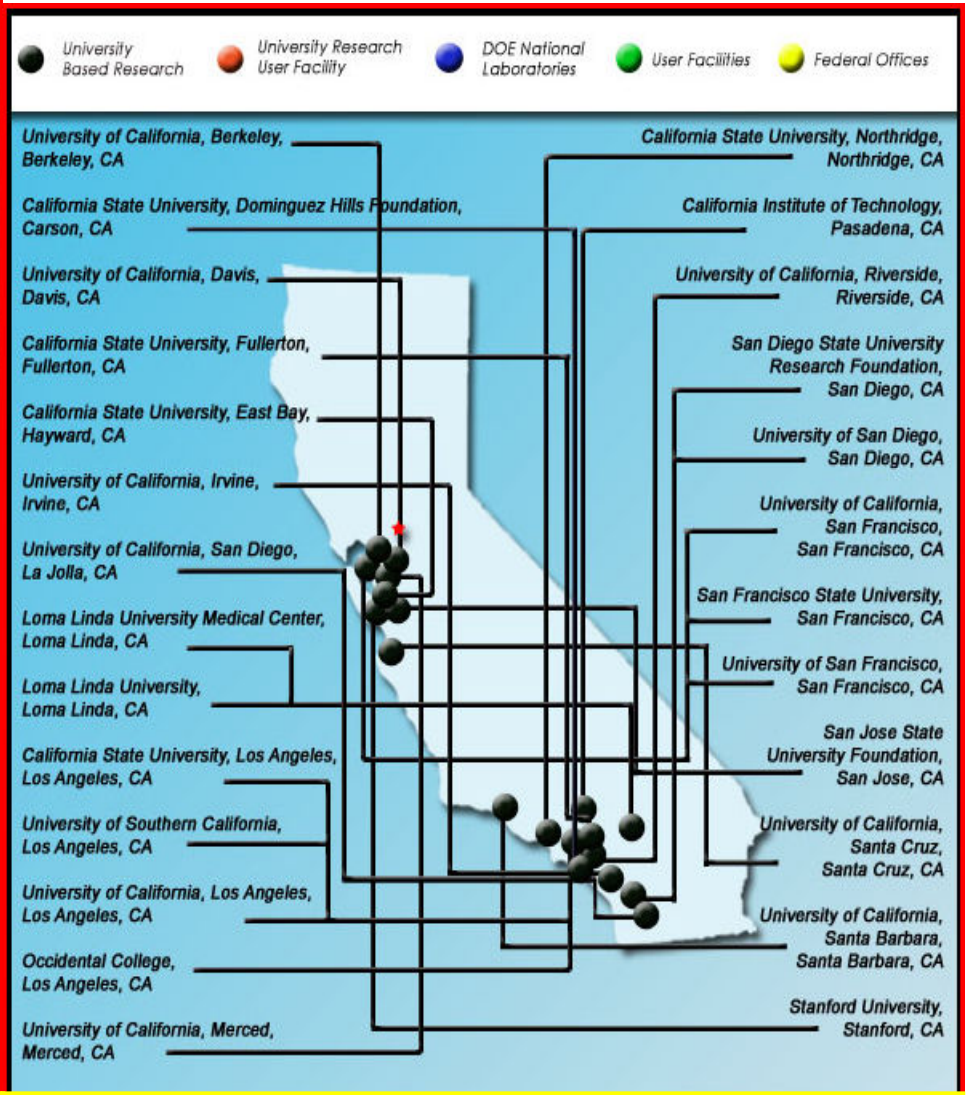
DOE Office of Science
Funding Guide: by State and District

Home

Previous Reports
FY 2007
FY 2006

Source: IMSC data as of 03/04/2009 for the Fiscal Year of 2008

Alabama	Illinois	Montana	Puerto Rico
Alaska	Indiana	Nebraska	Rhode Island
Arizona	Iowa	Nevada	South Carolina
Arkansas	Kansas	New Hampshire	South Dakota
California	Kentucky	New Jersey	Tennessee
Colorado	Louisiana	New Mexico	Texas
Connecticut	Maine	New York	Utah
Delaware	Maryland	North Carolina	Vermont
District of Columbia	Massachusetts	North Dakota	Virginia
Florida	Michigan	Ohio	Washington
Georgia	Minnesota	Oklahoma	West Virginia
Hawaii	Mississippi	Oregon	Wisconsin
Idaho	Missouri	Pennsylvania	Wyoming



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

<u>May 22:</u> 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)"

OMB, DOE & NSF Visits

Our Message: Relayed to OMB, DOE & NSF:

The partnership of universities and laboratories is the key to our successes

- Many congress-people still do not understand that the DOE Office of Science is the (or a) major funder of broad-based university research in the physical sciences, together with NSF
- This surprised some staffers
  - Map of funding and detailed tables had to be used in some cases
  - More such data would be useful for future visits to the Hill
- At OMB, Mike Holland said this is a key point that he has been saying that "for ten years"
- At DOE, Pat Dehmer and Glen Crawford also responded to this message
  - And wrote it down as something to be noted.

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 it 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 Dehmer 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".