



Spring 2014

State of the ID Lab

May,
2014

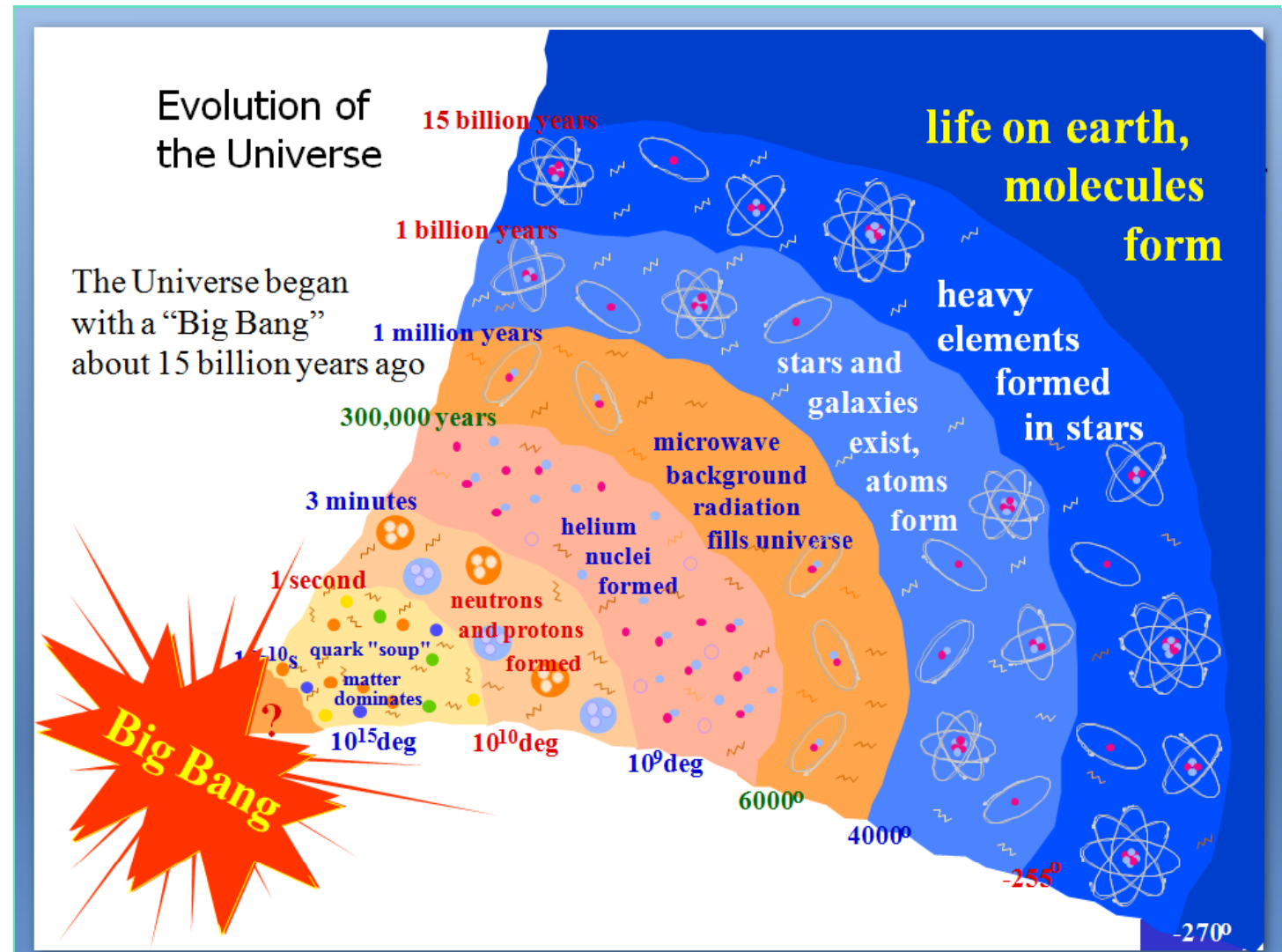
Frazz >> Jef Mallett



Why are we here??

Recent “B-mode” CMB measurements...

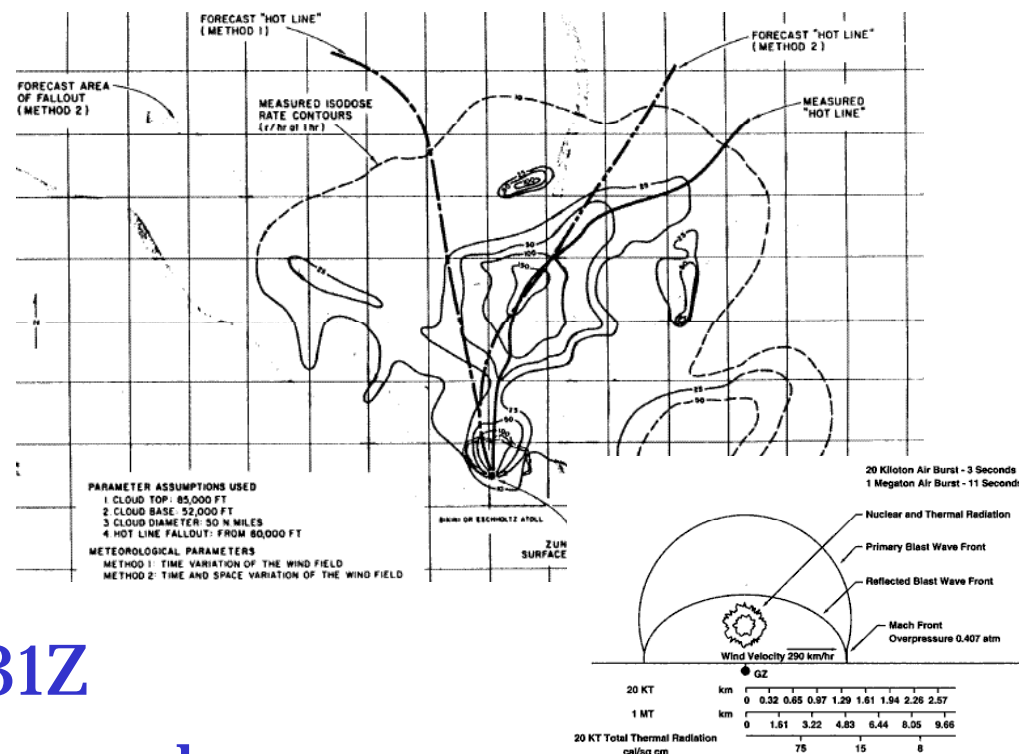
Many, many
unanswered
questions





~30 years ago today

- NBC NCO (D-lab passed)



- Line Alpha: 0231Z
- Line Bravo: 15 seconds

Figure 3-1. Chronological Development of an Air Burst

ReForGer

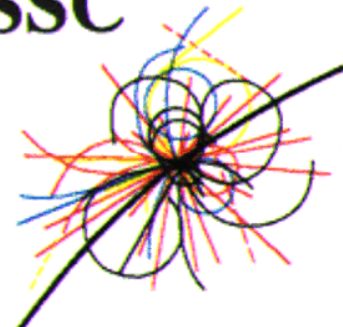
- 48 hours notice: Ft. Snelling to Fulda Germany



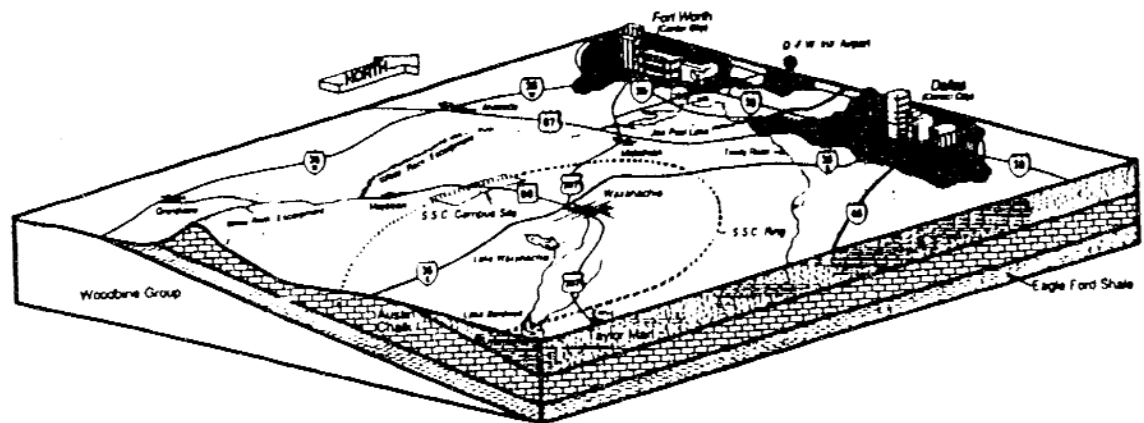
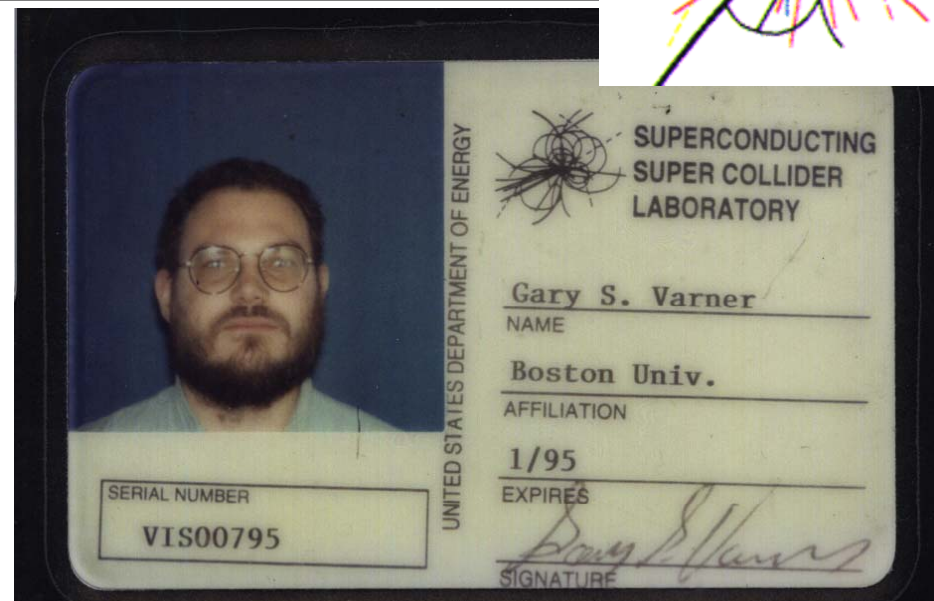
- Briefing: Colonel 367 Engineering Battalion

~ 20 years ago today...

SSC



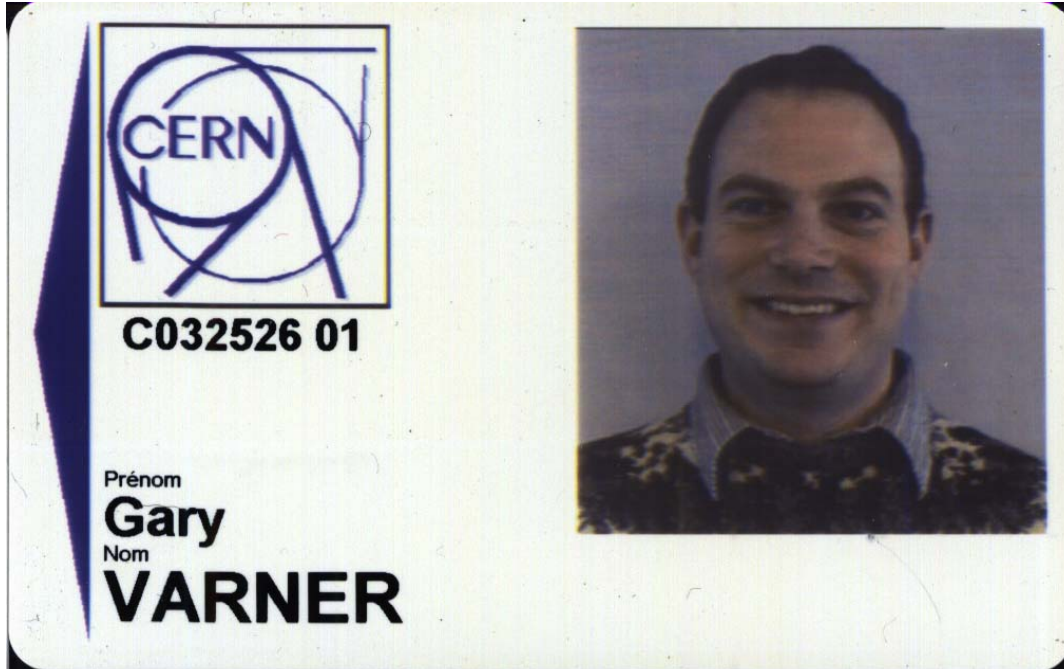
- Very ambitious...



- 40TeV vs 14 TeV (LHC)



~ just discovered ...



- Higgs discovery



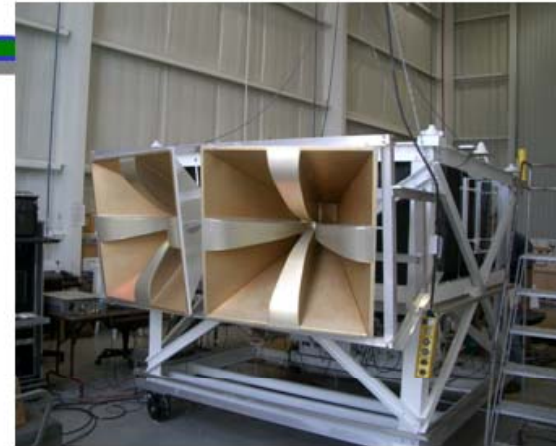
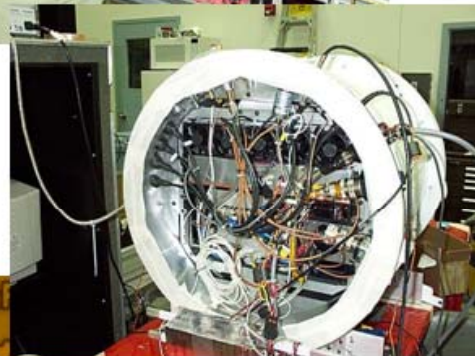
~ 10 years ago today...

- Guy in red?

ANITA-lite as-built Configuration



Electronics integration into pressure housing



Antenna arrangement

Instrument housing under TIGER



Housing, hard drive, veto antenna



Redundant fast-recovery USB harddrive (8GB)

A team effort! Hawaii dominated

Instrumentation Dev. Lab Meeting – May, 2004

~ (not quite) 10 years ago today...

- In a university, people come and go...



- Though some still around...

The year 2014

**Belle II
CD-2/3 !!**

**Summer in
Palestine!**



**CRT @ KEK
June**

**iTOP beamtest
In "october"**

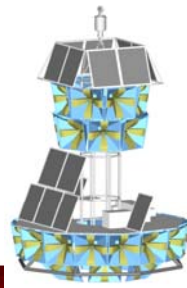


**ANITA3
flight!**

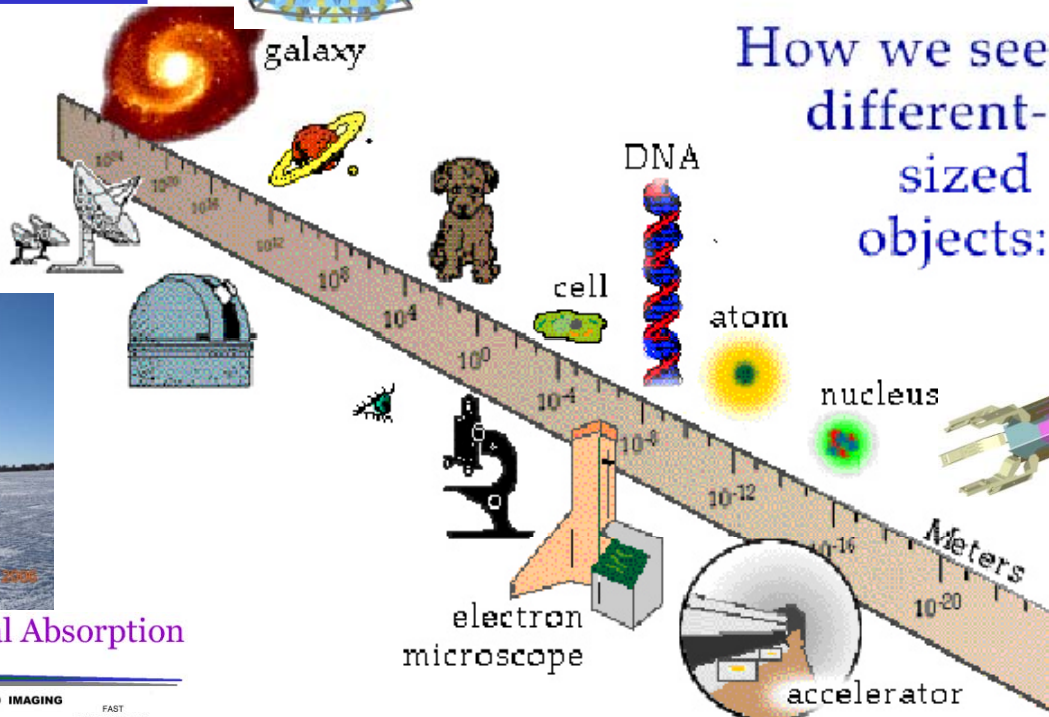
Big and Small



AMBER



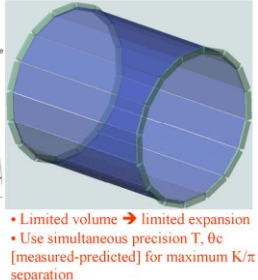
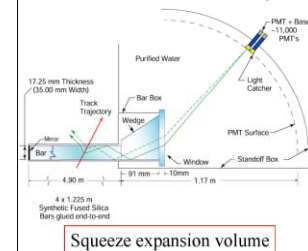
galaxy



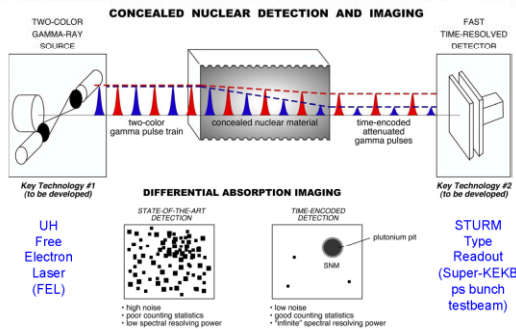
imaging TOP (iTOP)

Concept: Use best of both TOP (timing) and DIRC And fits Belle PID envelope

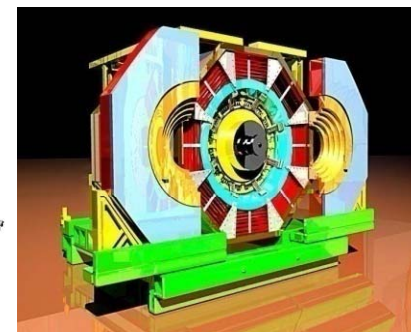
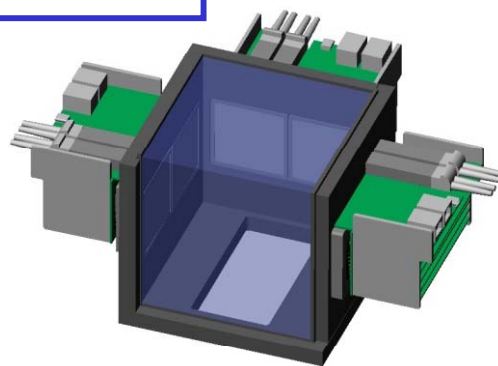
Drawings by Marc Rosen (UH)



Time-Encoded Differential Absorption

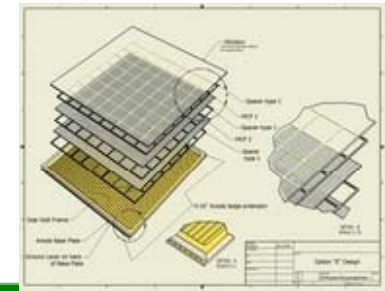
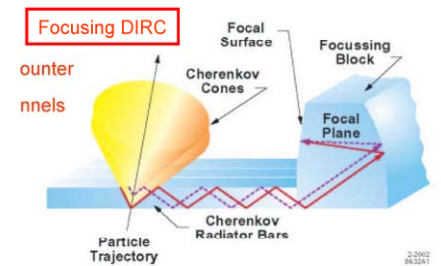


Neutrinos



BESIII

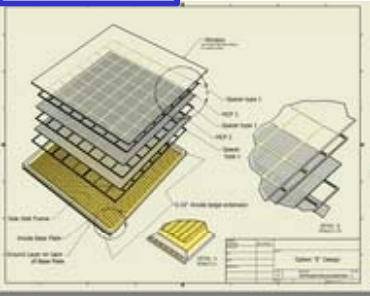
LAPPD →



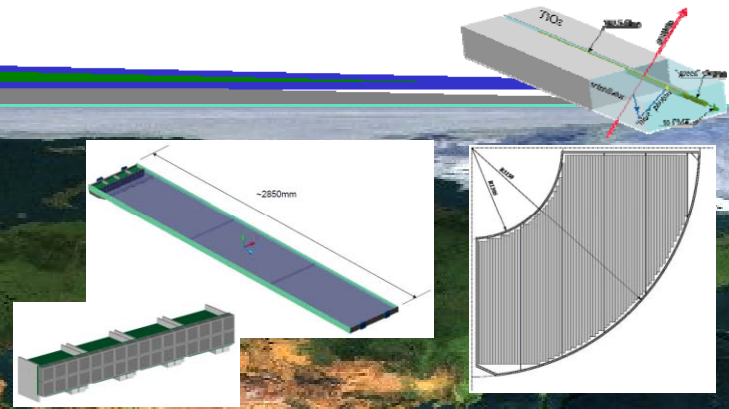
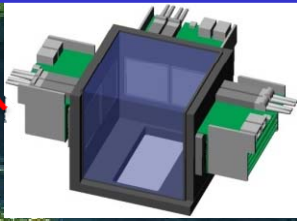
We (you) are doing world-class research here

Our Work @ Discovery Frontier

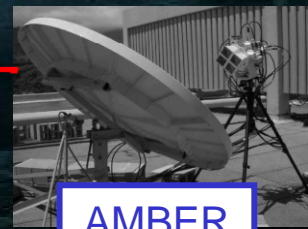
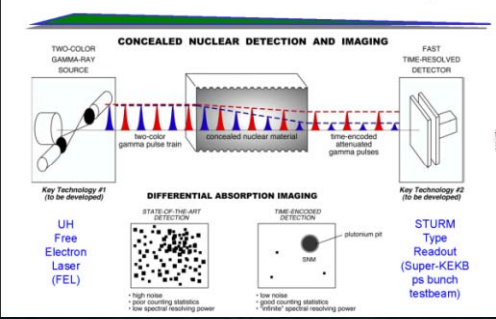
LAPPD



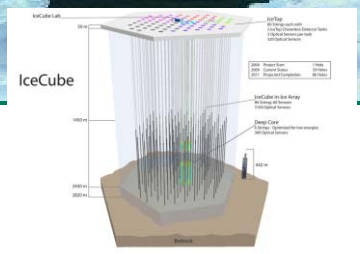
Mini-Time Cube



Time-Encoded Differential Absorption



AMBER

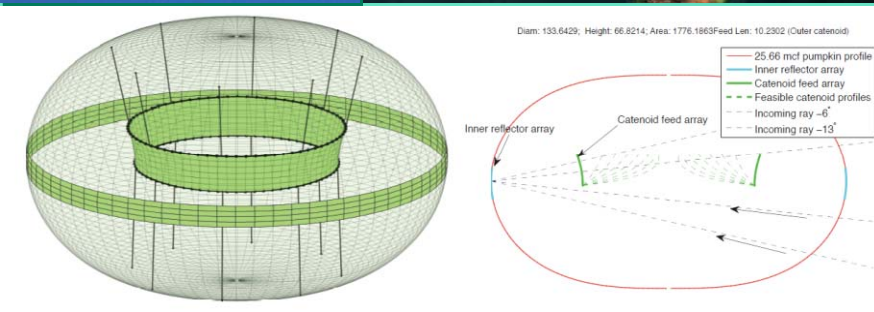
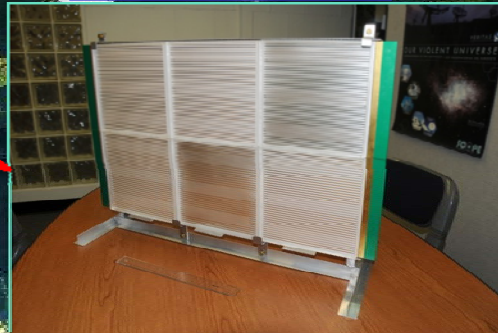


New/Immediate Projects

High intensity
MCP-PMT
Charge Sensitive
Amp GRAPH
ASIC

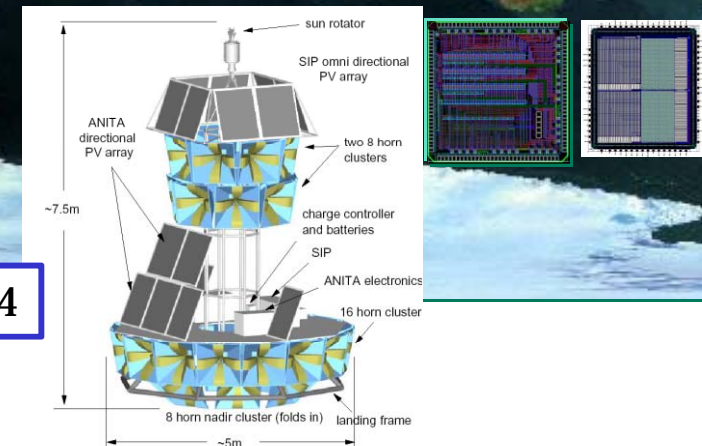
LAPPD Comm.

Belle II Construction
& Commissioning
(pixel, Silicon Upgrades)



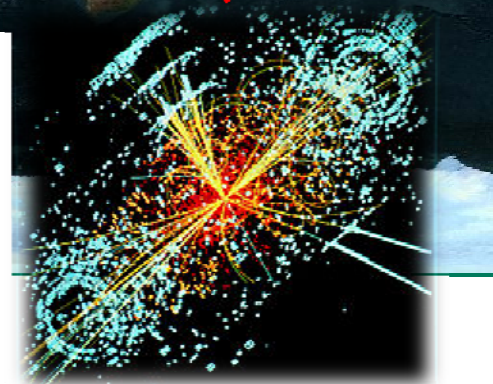
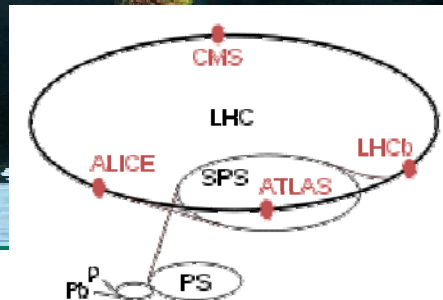
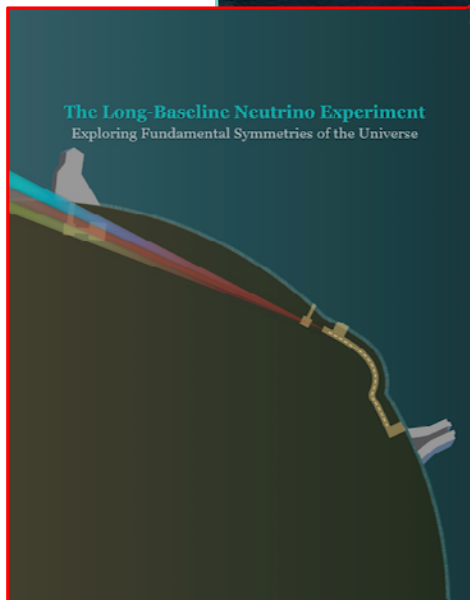
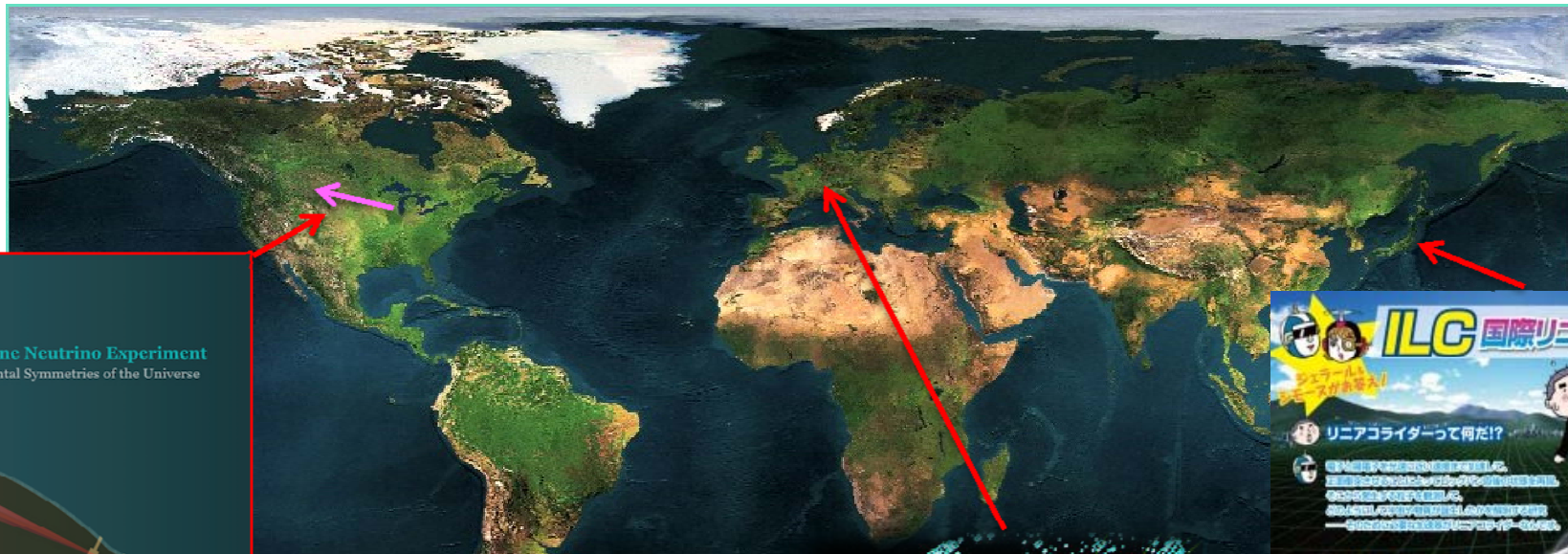
ExaVolt Antenna (EVA)

ANITA3, 4



The Future?

- P5 Report due out next week



- LBNE LHC Upgrades ILC

Wildcards??



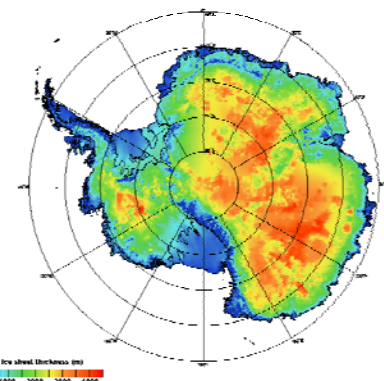
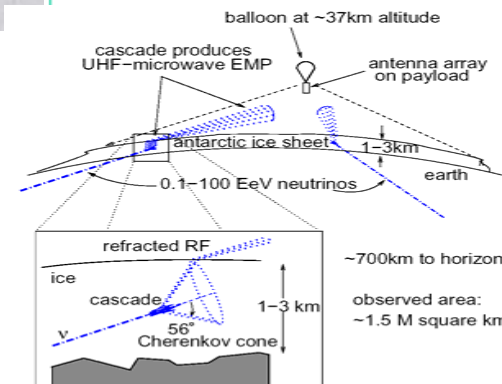
If you hang around climate scientists, you often hear the saying “Uncertainty is not our friend.” It came to mind yesterday, when two teams of scientists released papers that reached the same terrifying conclusion. A significant chunk of the West Antarctic Ice Sheet has begun to disintegrate and, owing to the ice sheet’s peculiar topography (much of it lies below sea level), this process, having begun, has now also become unstoppable. “Today we present observational evidence that a large section of the West Antarctic Ice Sheet has gone into irreversible retreat,” the lead author of one of the papers, Eric Rignot, a glaciologist at NASA’s Jet Propulsion Laboratory, said at a news conference. “It has passed the point of no return.” Rignot said that melting in the section of West Antarctica that his team had studied could cause global sea levels to rise by four feet over the course of a couple of centuries. Since the disappearance of some of its major glaciers could quite possibly destabilize the entire ice sheet, the ultimate sea level rise from West Antarctica, he said, could be triple that.

“Scary,” Stefan Rahmstorf, a professor of physics of the oceans at Potsdam University, who was not involved in either paper, tweeted. “One of the feared tipping points of the climate system appears to have been crossed.”

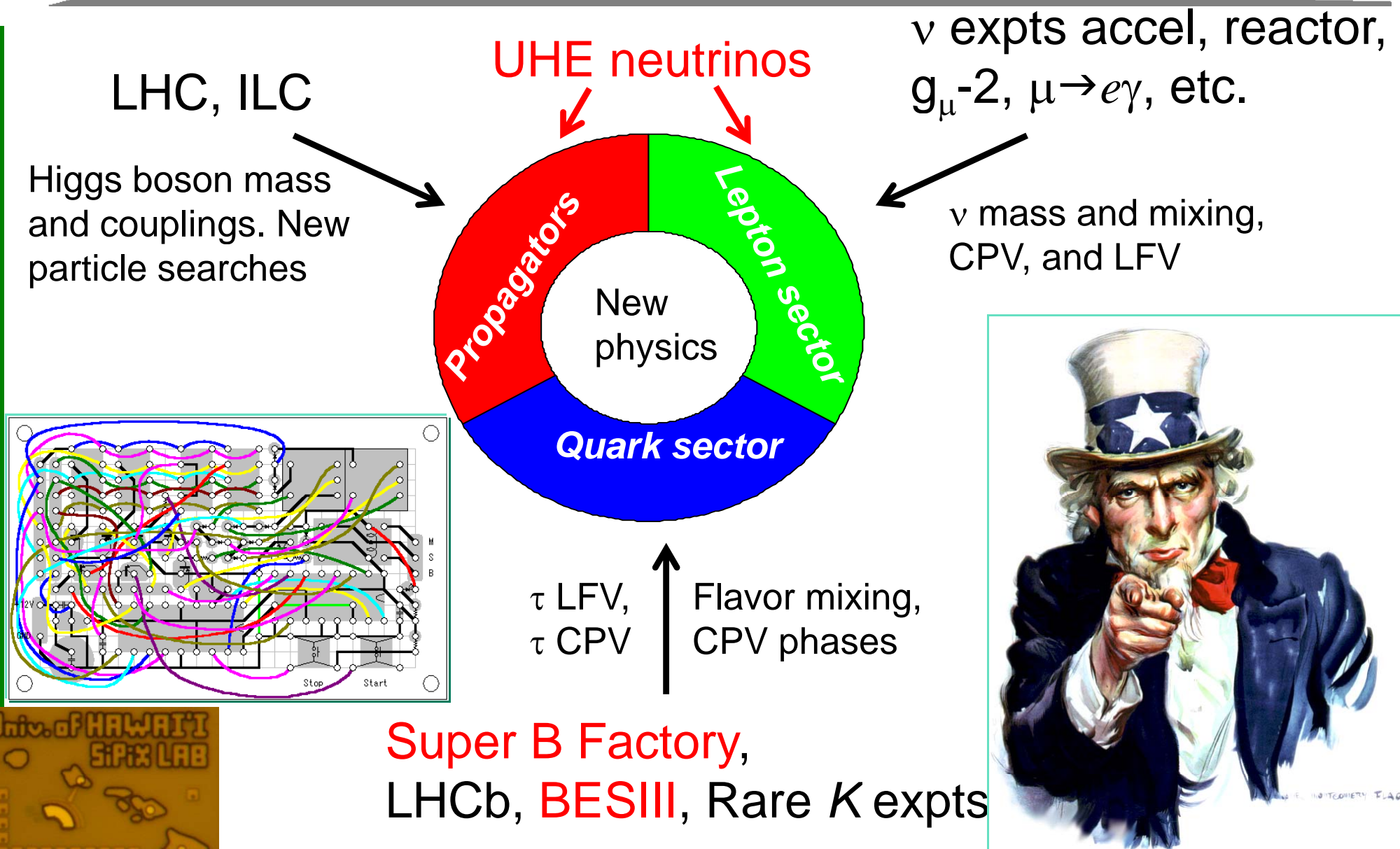
“This Is What a Holy Shit Moment for Global Warming Looks Like,” read a headline on the Web site of *Mother Jones*.

The vulnerability of the West Antarctic Ice Sheet, or WAIS, has been appreciated for a long

- WAIS pulser site??



We need you! (for new measurements)



Milestones and Opportunities

- Belle II – iTOP/KLM next 2 years, pixel upgrade thereafter
- Disruptive technology: LAPPD/commercialization
- ANITA 3rd Flight this year → active R&D (ASICs, trigger...)
- New radio initiatives: Greenland, UHE calorimetry
- Great opportunities – life cycle of a university
 - Jr./Sr. research projects (EE 399/499, PHYS 499)
 - Directed study/NASA Space Grant/REU (Japan/Antarctica)
 - Conferences & Publications (NIM/IEEE/JINST ...)
 - Board/firmware/chip design (PHYS476)
 - Many designs in queue; PSEC-5, STURM3, h-GRAPH2...
 - Design, layout, simulation and test opportunities



Thanks, Mike!

