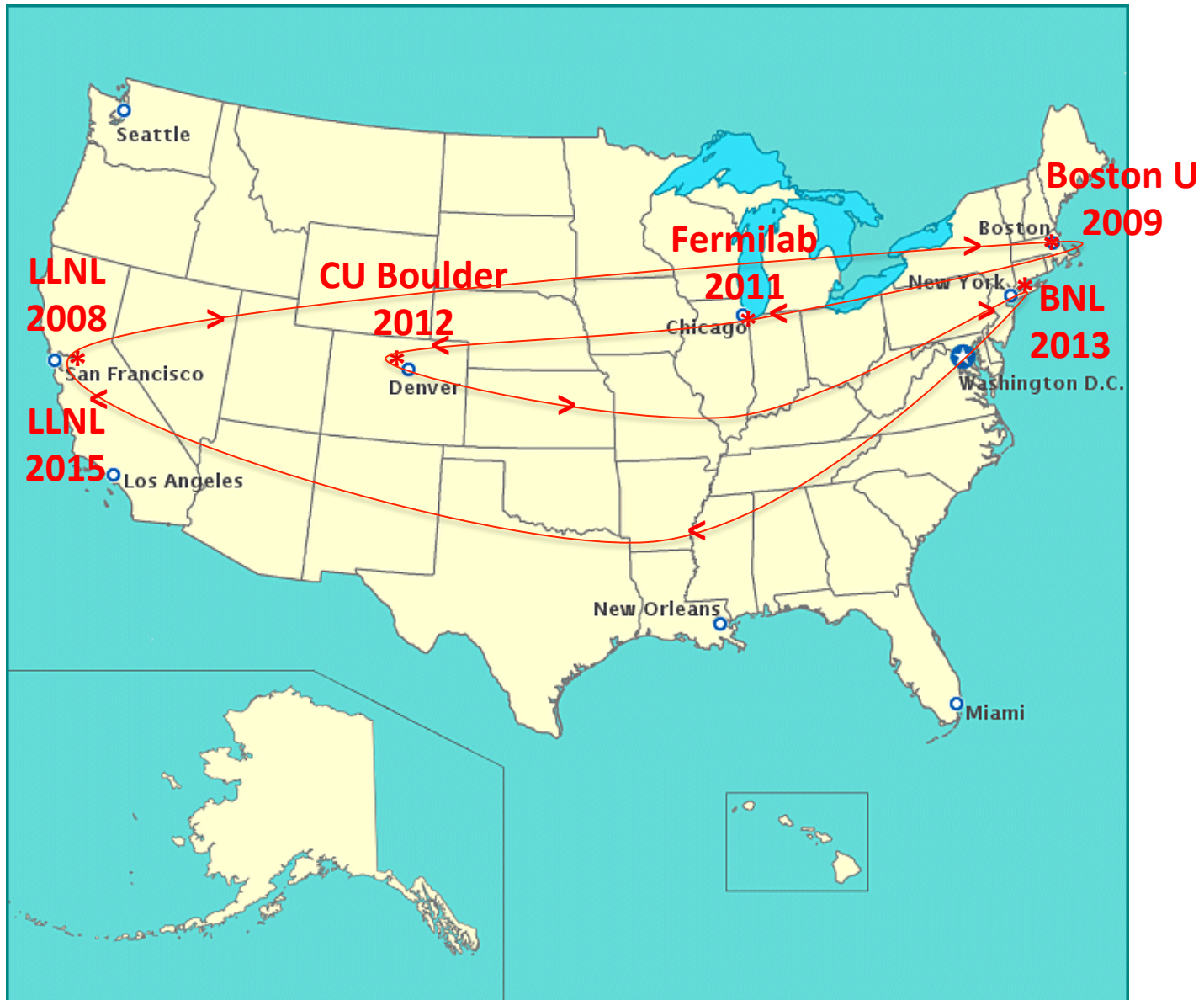


Welcome



Lattice for Beyond the Standard Model Physics, LLNL, April 23-25, 2015

The Lattice Strong Dynamics Workshops



The local organizing committee



Evan Berkowitz, LLNL



Ethan Neil, CU



Philip Powell LLNL



Enrico Rinaldi, LLNL



Pavlos Vranas LLNL

The scientific organizing committee

- Michael Buchoff (INT)
- George Fleming (Yale)
- Will Detmold (MIT)
- Masanori Hanada (Stanford/Kyoto U.)
- Kaustubh Agashe (Maryland)
- Graham Kribs (Oregon)
- Tom DeGrand (Colorado)
- Ethan Neil (Colorado)
- Pavlos Vranas (LLNL)

Our sponsor



Our LLNL administrators

Joy Nally, Karen Stephens

Web design

Jim McInnis

Are there strong interactions beyond the Standard Model?

Strong interactions ↔ **Lattice**

Workshop goals

- ★ Identify important phenomenological/theoretical questions that the Lattice can help answer.
- ★ Present current lattice efforts to inform, discuss, and convey the power of the Lattice.
- ★ Generate new ideas.
- ★ Visit LLNL
- ★ Connect and stay connected.

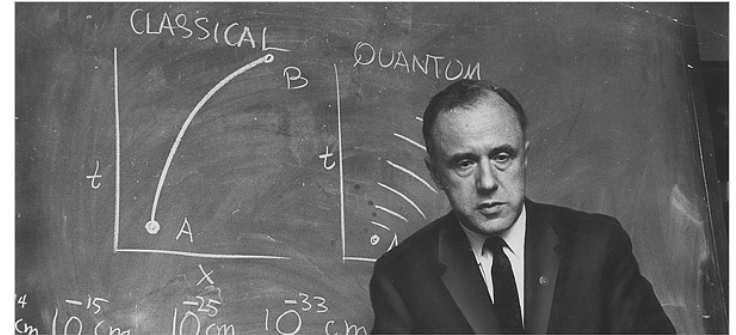


Pavlos Vranas, LLNL

Can it be?

J.A. Wheeler

Geons, black holes and
quantum foam, p 232



... nature would avail itself of all the opportunities offered by the equations of valid theories.

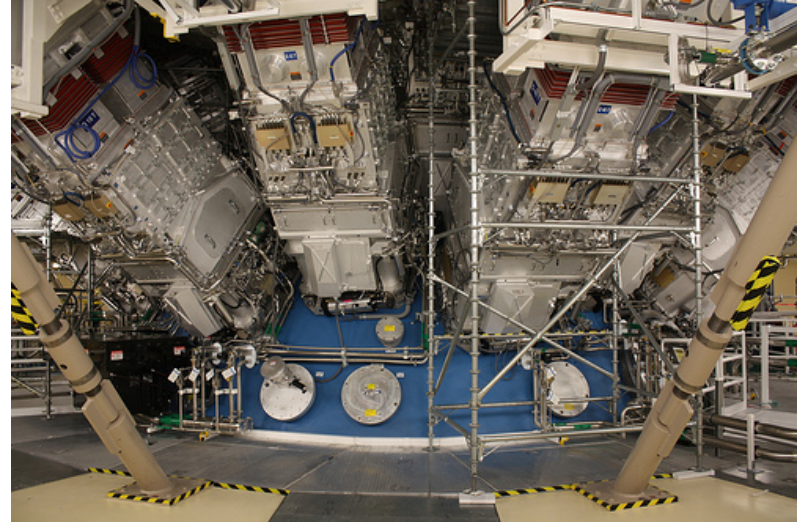
If nuclei could exist in doughnut shapes, I felt, that some of them would exist in such shapes.

We physicists should think about where such extreme behavior might occur, and look for it.

Visit LLNL



The LLNL supercomputing facility



The National Ignition Facility

Thursday	Speaker	Talks	Institution
8:00 – 8:20		Gather, light snacks	
Session 1	Chair: Kieran Holland, U. of the Pacific		
8:20 – 8:30	Pavlos Vranas	Welcome	LLNL
8:30 – 9:00	Anna Hasenfratz	Running, walking, standing: the interplay between the running coupling and infrared physics	U Colorado
9:00 – 9:30	Yasumichi Aoki	Nf=8 QCD	Nagoya U.
9:30 – 10:00	Evan Weinberg	Pushing towards lighter fermions in SU(3) with 8 fundamental flavors	Boston U
10:00 – 10:30		Coffee break	
10:30 – 11:00	Will Detmold	Dark nuclei	MIT
11:00 – 11:30	Tim Tait	Self-Interacting Dark Matter from a non-Abelian Hidden Sector	UC Irvine
11:30 – 12:00	Robert Lasenby	Synthesis and phenomenology of large Nuclear Dark Matter	Oxford
12:00 – 1:00		Catered lunch at the conference location	
Session 2	Chair: Michael Buchoff, INT U. of Washington		
1:00 – 1:30	Evan Berkowitz	Lattice QCD input to Axion Cosmology	LLNL
1:30 – 2:00	Kris Sigurdson	The Cosmology of Composite Dark Matter	U British Columbia
2:00 – 2:30		Coffee Break	
2:30 – 3:00	Graham Kribs	A Model of Stealth Dark Matter	U. Oregon
3:00 – 3:30	Enrico Rinaldi	Stealth Dark Matter on the Lattice	LLNL
3:30 – 5:00	Discussion and coffee with Ethan Neil	Moderated Discussion	
5:00		Depart for wine tasting at Wente vineyards (starts strictly at 5:30)	

Friday	Speaker	Talks	Institution
8:00 – 8:30		Gather , light snacks	
Session 3	Chair: Joe Kiskis, UC Davis		
8:30 – 9:00	Michael Peskin	The Importance of Lattice QCD for Precision Higgs Boson Measurements	SLAC
9:00 – 9:30	Markus Luty	Composite Higgs: Myth and Reality	UC Davis
9:30 – 11:00		LLNL NIF tour for approved group, break/lunch for others	
11:00 – 12:30		LLNL supercomputing facility tour for approved group , break/lunch for others	
12:30 – 1:00		Lunch for supercomputing tour participants at LLNL cafeteria	
1:30 – 2:00	Francesco Sannino	Composite versus Elementary Higgs: Problems and Progress	CP3 Denm
2:00 – 2:30	Julius Kuti	New results and open problems toward a minimal realization of the composite Higgs	UCSD
2:30 – 3:00	Bogdan Dobrescu	Composite Higgs models from top quark dynamics	Fermilab
3:00 – 3:30		Coffee Break	
Session 4	Chair: Agashe Kaustubh, U. of Maryland		
3:30 – 4:00	Wick Haxton	Nucleon and Nuclear Operators in a Model-Independent Treatment of WIMP Direct Detection	UCBerkley
4:00 – 4:30	Simona Murgia	Searching for Dark Matter in the Galactic Center with Gamma Rays	UC Irvine
4:30 – 5:00	Luca Vecchi	Partial Compositeness	Maryland
5:00 – 6:30	Discussion and coffee with George Fleming	Moderated discussion	
6:30		Departs for dinner at Casa Orozco, Livermore	

Saturday	Speaker	Talks	Institution
8:00 – 8:30		Gather, light snacks	
Session 5	Chair: James Osborn, ANL		
8:30 – 9:00	George Chapline	Unification of gravity and elementary particle physics using a gauge theory defined on the Lorentzian Leech lattice.	LLNL
9:00 – 9:30	Kostas Skenderis	Lattice Holographic Cosmology	Southampton
9:30 – 10:00	Edgar Shaghoulian	Non-unitary CFT duals to de Sitter quantum gravity	UCSB
10:00 – 10:30		Coffee break	
10:30 – 11:00	Rich Brower	Lattice radial quantization	Boston U
11:00 – 11:30	Guy Gur-Ari	Chaotic behavior in the classical Yang-Mills matrix model	Stanford
11:30 – 12:00	David Schaich	Lattice for Supersymmetric Physics	Syracuse
12:00 – 1:00	Discussion and coffee with Masanori Hanada	Moderated discussion	
1:00		Adjourn	