

COSMIC OPPORTUNITIES

SSI2017 • August 14-25
45TH SLAC Summer Institute



Welcome to the 45th SLAC SUMMER INSTITUTE !



Hopefully everything you need to know is on the SSI webpage.. but let's go through a few things.....

SSI 2017



SLAC NATIONAL ACCELERATOR LABORATORY

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Welcome to the 45th SLAC Summer Institute

Cosmic Opportunities

August 14-25, 2017
SLAC National Accelerator Laboratory
Menlo Park, California

SLAC Summer Institution Program

The SLAC Summer Institute (SSI) is an annual two-week-long Summer School tradition since 1973. Lectures are given Monday through Friday each morning. The afternoons contain a mixture of special lectures, topical conference talks, discussion sessions, student projects and tours. In the evenings, there are social activities and student poster sessions. The attendance is typically a mixture from graduate students to postdocs, as well as senior researchers.

The theme of the 2017 SSI will be "Cosmic Opportunities", focusing on upcoming opportunities to expand our knowledge and understanding of the physics of the universe via cosmological measurements of CMB, Dark Energy, Dark Matter and Gravitational Waves. New fundamental observations are forthcoming from improved experiments and new frontier facilities. What do we hope to learn from this new information ?

Please connect with SSI on Facebook: <https://www.facebook.com/SLACSummerInstitute>

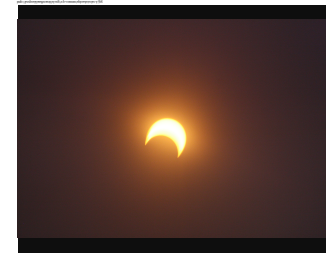
The SSI 2017 poster can be view [here](#).

Announcements and Important Dates



The schedule is available in 2 forms: a spreadsheet & in **full** detail on Indico

- The morning lectures & the afternoon Topical talks will be here in the Kavli Auditorium
- The afternoon Q&A and the project sessions : Redwood Rooms in ROB
- The reception & dinners : patio outside the ROB



45th SLAC Summer Institute

14-25 August 2017
SLAC
US/Pacific timezone

Search...

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- ✉ sudong@slac.stanford.edu

The SLAC Summer Institute (SSI) is an annual event held at the SLAC National Accelerator Laboratory in the summer. The Institute is a two-week-long Summer School. Lectures are given Monday through Friday each morning. The afternoons contain a mixture of special lectures, topical conference talks, discussion sessions, student projects and tours. In the evenings, there are social activities and student poster sessions. The attendance is typically a mixture from graduate students to postdocs, as well as senior researchers.

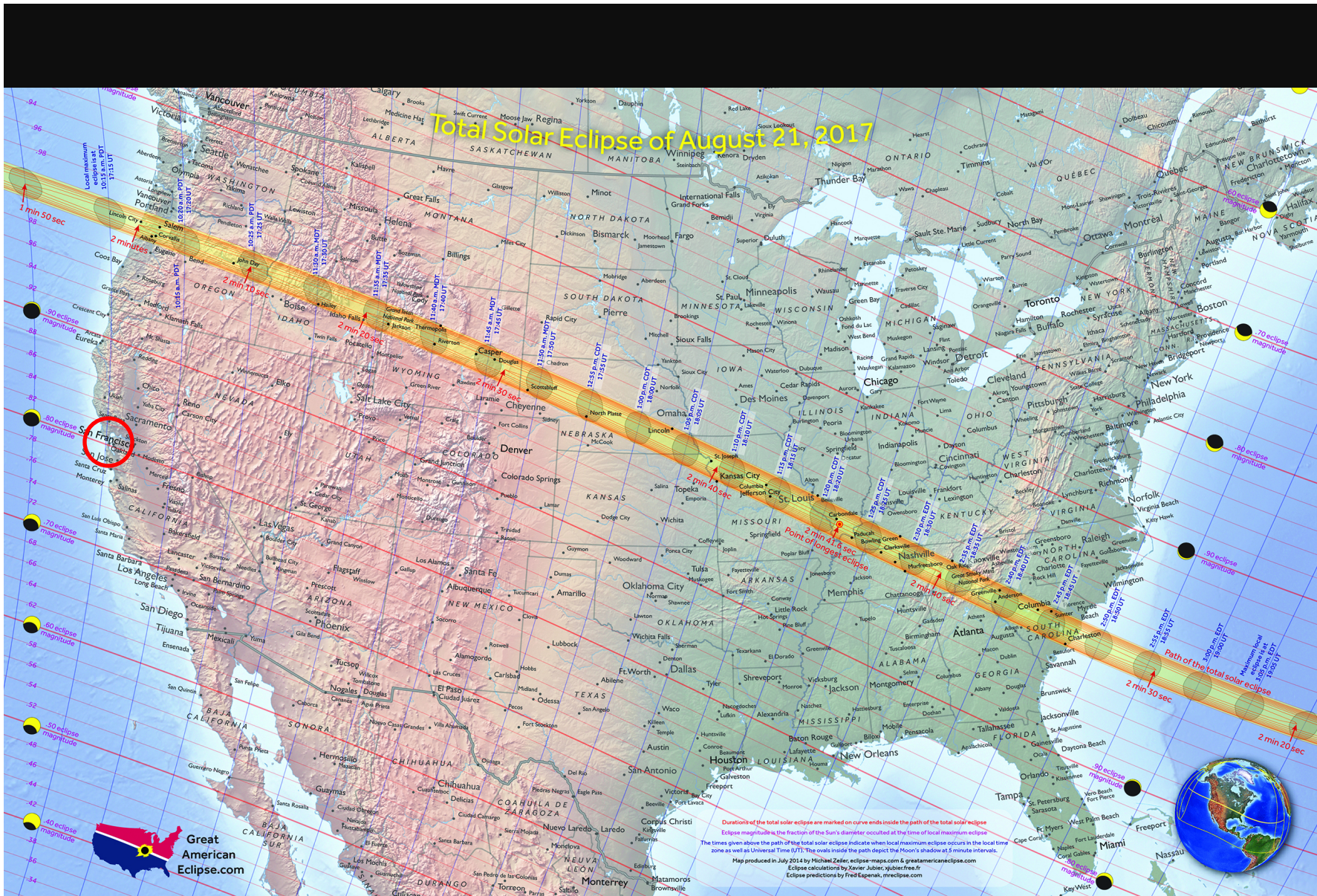
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All lectures and Topical Conference sessions will be held in the Kavli Auditorium. For other locations of events, please check the Indico Time Table room assignment.

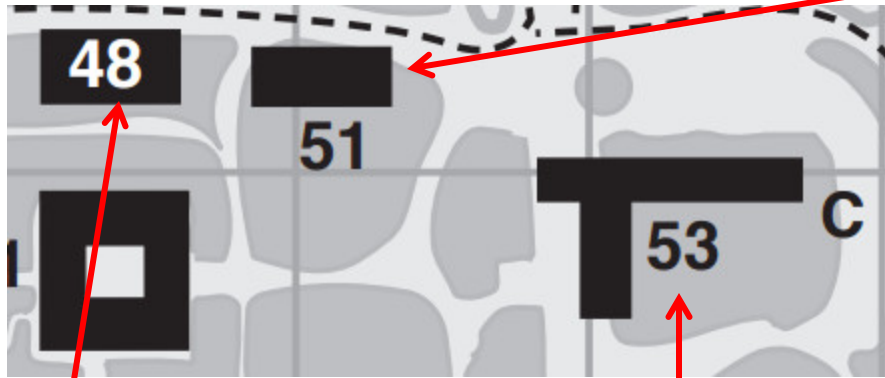
Starts 14 Aug 2017 08:30
Ends 25 Aug 2017 21:45
US/Pacific

SLAC
Kavli Auditorium

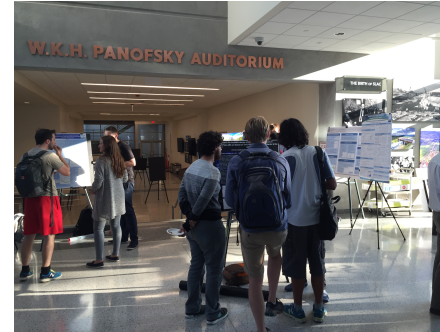
SSI 2017 - Cosmic Opportunities										
Time / Date	14-Aug Monday	15-Aug Tuesday	16-Aug Wednesday	17-Aug Thursday	18-Aug Friday	21-Aug Monday	22-Aug Tuesday	23-Aug Wednesday	24-Aug Thursday	25-Aug Friday
8:45 - 9:00										
9:00-10:00	Cosmic Frontier Landscape <i>Ritz</i>	Cosmology Basics (III) <i>Frieman</i>	CMB Theory & History <i>Senatore</i>	CMB Experimental Techniques <i>Slaggs</i>	CMB & Inflation <i>Kuo</i>	CMB & Light Degrees of Freedom <i>Meyers</i>	CMB Cosmology <i>Battaglia</i>	Theory of Gravitational Waves <i>Creighton</i>	Detection of Gravitational Waves <i>Robertson</i>	Alternative Theories of Gravity <i>McGaugh</i>
10:00-10:30	Morning Break					Solar Eclipse & Break	Morning Break			
10:30-11:30	Cosmology Basics (I) <i>Frieman</i>	BBN <i>Olive</i>	Dark Matter - Theory <i>Feng</i>	DM Direct Detection: Noble Liquids <i>Monzani</i>	DM Direct Detection: Crystals <i>Pyle</i>	Axions as Dark Matter <i>Van Bibber</i>	Ultra Light Dark Matter <i>Graham</i>	Indirect Detection of Dark Matter <i>Albert</i>	DM Searches at Accelerator Experiments <i>Toro</i>	Dark Energy: Combined Probes <i>Krause</i>
11:45-12:45	Cosmology Basics (II) <i>Frieman</i>	Baryo-/Leptogenesis <i>Grossman</i>	Dark Energy - Theory <i>Trodden</i>	Large Scale Structure: Imaging <i>Wechsler</i>	Large Scale Structure: Spectroscopy <i>Wechsler</i>	Dark Energy: Weak Lensing <i>Schneider</i>	Dark Energy: Galaxy Counts <i>Mantz</i>	Dark Energy: Supernovae <i>Kim</i>	Dark Energy: Strong Lensing <i>Marshall</i>	The Labyrinth Ahead <i>Blandford</i>
12:45-13:30	Lunch			Lunch	Lunch	Lunch	Lunch	Lunch		
13:30-14:00				Klystron Gallery Tour				Klystron Gallery Tour		
14:00-14:30										Project Presentations
14:30-14:45										
14:45-15:15	Higgs & SM @ LHC <i>Gray</i>	Q&A	ββDecay <i>Kaufman</i>	Q&A	Cosmic Visions DM - Schuster	Neutrino Theory <i>Friedland</i>	Q&A	Road To Dune <i>Blucher</i>	Project Presentations	
15:15-15:45	New Physics Searches @ LHC <i>Eno</i>		XENON-1T <i>Tunnell</i>		Cosmic Visions CMB - Kuo	Recent v Exp Results <i>Tanaka</i>		Atomic Precision Frontier <i>Perez</i>	Project Presentations	
15:45-16:05	Afternoon Break						Afternoon Break			
16:05-16:35	Break		PICO <i>Dahl</i>	Projects	Projects	Ice Cube <i>Keim</i>	Projects	Projects	Projects	Project Presentations
16:35-17:05	LHCb <i>Stone</i>	Projects		Kavli Vislab Tour		Break	Projects	Kavli Vislab Tour	Projects	Project Presentations
17:05-17:35	ALICE <i>Jacobs</i>	Projects				Projects	Projects	Projects	Projects	Project Presentations
17:35-18:00										
18:00	Reception	Dinner	Poster Social			Dinner	Poster Social	Soccer	Dinner	



Kavli



- The poster session will be held in the SUSB (on 8/16 !)



ROB

SUSB
Lunch

The Contest Question: Every year we ask the students to answer a broad-based 'light' question depending on the SSI subject. This year the question is:

“ What measurement or set of measurements would lead to the obvious failure of the Λ CDM model & what kind of theory would replace it? ”



Place your answers in the pink box (by 5PM 8/24) & a winner will be chosen during the last dinner (after wine).. the winner gets a bottle of fine CA bubbly signed by Nobel Prize winner Burton Richter on the last day.

To get the flavor: <https://indico.cern.ch/event/484545/timetable/?view=standard>

Q&A Sessions



- These are intended for extensive questions so those during the lectures & immediately afterward should be kept short & to the point.. of course, other questions can also be addressed to the speakers directly during breaks
- Note that questions can also be submitted (anonymously) with GoogleDocs via a link on the webpage & will be addressed in the Q&A sessions

Projects:



- Since 2013 we have incorporated projects conducted by teams of students into SSI
- We will provide a list of projects (to be posted later today or early tomorrow on the SSI website -- so keep your eyes open!) & you pick what looks interesting to you.. again, sign up using GoogleDocs on the SSI website
- Teams form around a given project & try to address the issues
- Teams present their results on the final TH afternoon (8/24) & the best team wins prizes
- More details tomorrow afternoon @ ~4PM

Odds & Ends

- Sign up for tours at the registration desk (see schedule for times)
- Be aware of next week's soccer game between the SSI students & the SLAC team...sign up to play or watch
- Check the SSI "SLAC campus" page for info wrt printing, ATMs, after hours access, etc.





Group photo after the first lecture ↓

