



Turns Ten

Symposium

July 17th, 2014

LPC from international visitor's Perspective

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My Work and collaborations at LPC

❖ Higgs search:

1. HWW mode with semileptonic final state (Approved)

❖ Standard Model Physics:

2. WW+WZ cross-section measurement and ATGC (Advanced stage)
3. Leading WW+2Jets measurement in vector boson topology (converging)

I work with Multiboson + Jets analysis team (previously known as Inujj team):

Collaborating with Galaxy of LPC based scientists:

Dan Green¹, Andrew Beretvas¹, Jeffrey Berryhill¹, Kalanand Mishra¹, Jake Anderson¹, Nhan Tran¹, Phil Duder², Ilya Osipenkov³, Jordon Damagov² and others.

1. Fermi National Accelerator Laboratory, Batavia, IL, USA
2. Texas Tech University, Lubbock, Texas, USA
3. Texas A & M University, College Station, Texas, USA

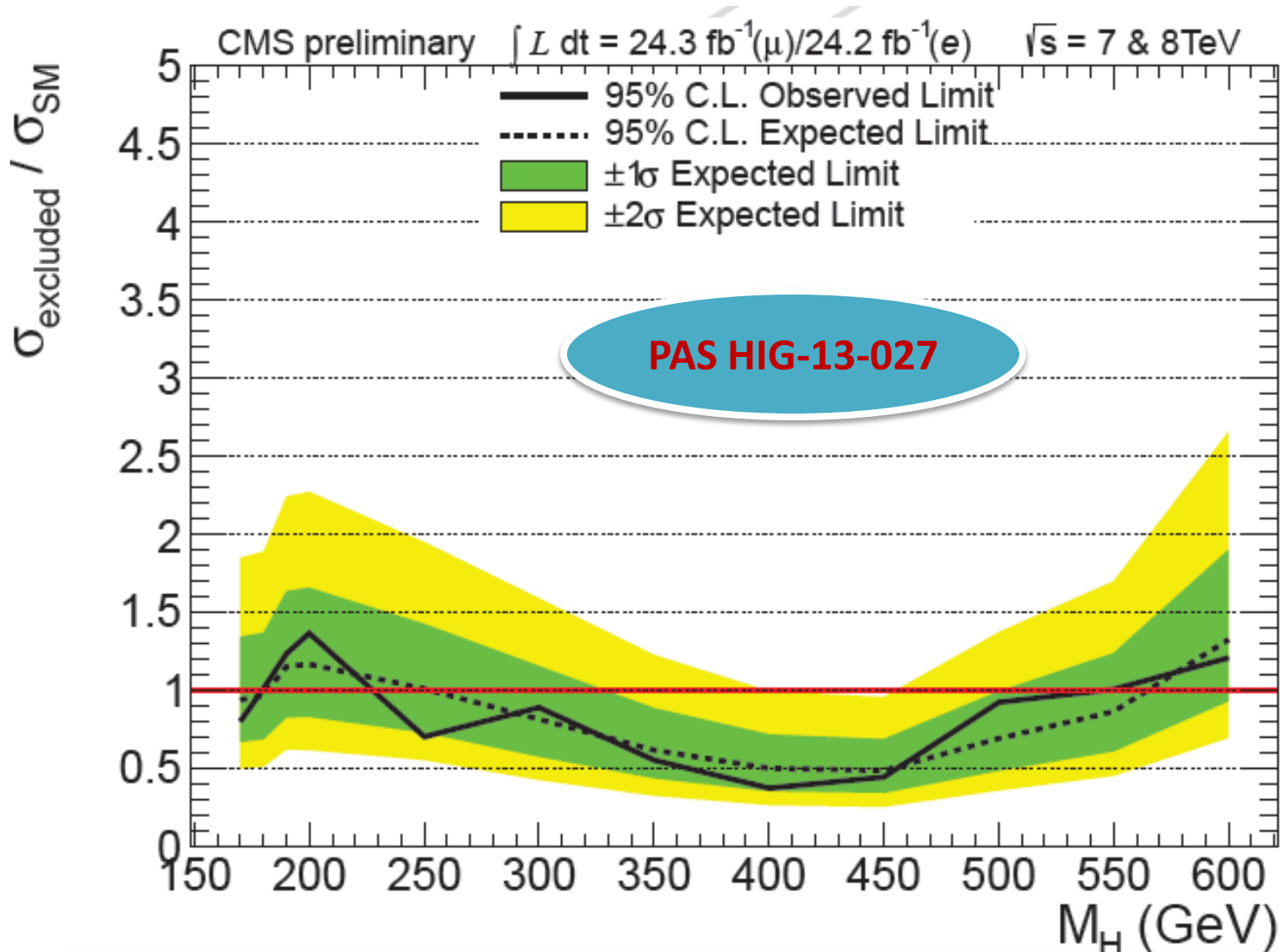
Public results:

HIG-12-021: Published: European. Physics Journal C, 73 (2013).2469

HIG-12-046: HCP 2012

HIG-13-027

Recent accomplishment:



Will be included in **HIG-13-031** (upcoming high mass higgs paper)

LPC :--- LHC Physics Center at Fermi lab

- ❖ LPC -- regional center of Compact Muon Solenoid (CMS) Collaboration.
- ❖ I found excellent working environment.
- ❖ People are very encouraging, energetic and team players.
- ❖ Exciting physics programs and computing support.
- ❖ Tremendous opportunity to collaborate and feel counted.

Strong International collaborations:

India: Around 15 students, faculty and PhDs benefitted.

Turkey: Around 15 students and faculty.

China: Above 6

Brazil: Above 4

Bulgaria: 2 Students

Ecuador & Colombia: 5 students and faculty.

Working on physics analysis and upgrade.

LPC Activities: which I found very interesting.

The screenshot shows the LPC (LHC Physics Center) website header with the Fermilab logo. A navigation bar includes links for HOME, VISIT LPC, ACTIVITIES, PROGRAMS, COMMUNITY, CALENDAR, and ORGANIZATION. The main content area features a 'Topic of the Week' section with a box containing links for 'Past Speakers', 'Archive', and 'Program Info'. Below this is a table of activities. An orange arrow points from the 'ZBA' link in the table to a call-to-action box on the right that says 'Join us on July 31st –the topic is “Recent Higgs Results”'.

Day	Speaker	Link to the Talk	Where	Attendance
July 31 at 3 pm	Ajay Kumar (U. of Delhi)	ZBA	WH11 NE (Sunrise)	
July 22 at 3 pm	Matt Reece (Harvard)	Natural SUSY's Last Hiding Places	WH11 NE (Sunrise)	
June 17 at 3 pm	Tim Cohen (SLAC)	Jet Substructure by Accident	WH11 NE (Sunrise)	42 total (38 CMS)

❖ **CMSDAS:** Excellent program to get started for new grad and Post Docs. Co-facilitated “long and short Jets exercises in CMSDAS2014, FNAL.

❖ **LPC@HATS :** Its very important to remain updated to new developments and techniques as we work in continuously evolving field.

❖ **Physics Forum:** New evolving analysis discussed

❖ **Coffee hour:** Interesting chat initiators, open discussion

How, I landed up at LPC?

- ❖ When I joined PhD in 2010, I was fascinated by Higgs and SUSY things. CMS has just started collecting data. I started working on $HWW \rightarrow l\nu\tau\nu_\tau$ analysis in beginning.
- ❖ During CMSWEEK in 2011, my supervisors R. K. Shivpuri, Kirti Ranjan and Md. Naimuddin met with Dan Green and Kalanand Mishra at CERN. There after I met with Kalanand Mishra at CERN. And we realized that we need each other so agreed to collaborate.
- ❖ It was the time LPC group were converging with 7 TeV higgs analysis. CMS was getting ready for 8TeV run. So, I started working on 8TeV in $HWW \rightarrow l\nu jj$ in the high mass region.
- ❖ Realized that it would be nice if I could come over to LPC. So, I applied under Guest & Visitor program with my research proposal. Rick and Ian were kind enough to accept that. Later on Dan and Kalanand recommendation I came again to help in various $l\nu jj$ analysis as Intern in August 2013. Thanks to Meenakshi and Boaz for supporting us.
- ❖ I have been here
from : Aug 2012 to Dec 2012
and Since Aug 2013 till date.

How I/We am benefitted and contributed to CMS and LPC in particular ?

- ❖ Being here I was able to interact on daily basis to LPC collaborators.
- ❖ Got training in software and analysis techniques through various means such as LPC@HAT, CMSDAS, and one to one discussions with experts.
- ❖ That helped me to contribute various analysis of the group significantly.
- ❖ I have been contact person of group for physics object selection, Simulation, software development and processing of data and MC.
- ❖ Did multivariate optimization and control plots for Higgs and Diboson analysis co-edited AN and PAS.
- ❖ Carrying out full analysis for WW+2Jets measurement which involve development of new techniques and software, simulation, data-MC comparisons, MVA, b-tagging, Fitting, Limit setting, systematic study etc.
- ❖ **High-Points:** Gave talk at April **APS2014** meeting, Presented Poster at **LHCP2014**, Gave approval talk of **baseline higgs analysis** with full dataset and got approved.

I would like to share Edgar Carrera (from Ecuador) sentiment that LPC is helping international collaborators to increase their Critical mass so that they can fly solo.

Thank you.

I would really like to thank LPC founders for coming up with this idea, Past and present Coordinators for leading it forward so well, and well wishers ☺ on behalf of whole international collaborators.

I am sure this will continue and will further strengthen and remain mutually beneficial.

I can be contacted at:

Email: a.kumar@cern.ch

<http://home.fnal.gov/~ajay/AboutMe.html>

End

Back Up

Programs:

❖ LPC Distinguished researcher program: (to stay ahead 😊)

Designed to help build and maintain the strength of the CMS Collaboration .

❖ Guest and Visitor program:

To facilitate CMS collaborators from world-wide to spend time at the LPC and collaborate with other LPC residents/applicants on projects that advance, enrich, and impact the interests of the CMS experiment.

❖ CMSDAS: Every year in month of January.

Activities:

❖ LPC@HATS :

Very interesting, up to date topics are covered,

❖ Physics Forum

❖ Topic of the week

❖ Coffee hour

LPC COFFEE HOUR

- **What is it?:** Informal chat with healthy food and coffee to discuss anything interesting at LPC
- **When:** Normally the first Wed. of the month, 1 - 2 pm
- **Where:** Normally WH11ROC
- **What you need to do? :** Audience: Prepared to be social. Speaker (depending on one or two scheduled): 10'-20' of impromptu talk + 5'-10' for Q&A and discussion. No slides please, but you can use white board or bring cue cards.

Upcoming Coffee Hour Event

July 23, 2014, Wed. 1-2pm, @WH11ROC

