

*Welcome to the Open Day  
of the ATLAS Flavor Tagging  
and Higgs to  $b\bar{b}$  Workshop!*

SHAW CENTER FOR GEOMETRY AND PHYSICS



**Stony Brook**  
**University**

*September 5th, 2017  
Della Pietra Auditorium - SCGP*

# Today's agenda (morning)

09:00 → 10:10

## First morning session: Heavy Flavor

Conveners: George Sterman (SUNY), Richard Hawkins (CERN)

09:30

### Introduction to b-tagging algorithms (including X to bb tagging and MC dependence)

Speaker: Andrew Stephen Chisholm (CERN)



ASC\_FTagHbbWS...

⌚ 30m

10:10 → 10:30

## Coffee break

⌚ 20m

10:30 → 12:15

## Higgs searches to bb: results and outlook ¶

Conveners: Patrick Meade (Stony Brook University), Timothy Paul Scanlon (University of London (GB))

10:30

### H to bb results

Discussion of latest ATLAS Higgs to bb results

Speaker: Nicolas Morange (Universite de Paris-Sud 11 (FR))

⌚ 30m

11:00

### Q&A session

⌚ 15m

11:20

### Where should we look for BSM in H to bb and H to cc

Speaker: Carlos E.M. Wagner (University of Chicago)

⌚ 30m

Lunch from 12:15 to 13:30

# Today's agenda (afternoon)

## 13:30 → 15:10 Next steps in H to bb and MC modeling

**Conveners:** Sara Lynn Dawson (Brookhaven National Laboratory (US)) , Young-Kee Kim (University of Chicago (US))



### 13:30 Next steps in H to bb beyond inclusive signal strength

⌚ 20m



Next steps in H to bb beyond inclusive signal strength: which differential measurements should we produce, where should we look for new physics, how should we parametrize potential new physics contributions

**Speaker:** Michelangelo Mangano (CERN)

### 14:05 Open theory issues in H to bb analyses: what generators we use, how we estimate the uncertainties, where are our present limitations

⌚ 15m



**Speaker:** Valerio Dao (Stony Brook University)

### 14:30 Towards an NLO shower and more realistic parton shower uncertainties

⌚ 20m



Including a discussion of gluon splitting uncertainties and heavy flavor overlap removal.

**Speaker:** Stefan Hoeche (SLAC)

## 15:10 → 15:30

## Coffee break

⌚ 20m

## 15:30 → 17:00 Theory modeling of H to bb backgrounds and HF processes

**Conveners:** Paolo Francavilla (LPNHE and Institute Lagrange de Paris - ILP (FR)) , Stefan Hoeche (SLAC)



### 15:30 Experience with modelling of processes with heavy flavor in ATLAS analyses (including calibrations) - What are the key issues

⌚ 10m



**Speaker:** Paul Thompson (University of Birmingham (GB))

### 15:50 Brief overview and theory progress on Z+bb and W+bb(j) @ NLO, including matching to parton showers

⌚ 20m



**Speaker:** Laura Reina (Florida State University (US))

### 16:25 WbWb production with POWHEG BOX RES

⌚ 20m



**Speaker:** Tomas Jezo (University of Zurich)

SIMONS CENTER FOR GEOMETRY AND PHYSICS PUBLIC LECTURE SERIES PRESENTS

# MYSTERIES OF THE UNIVERSE AND EVERYDAY LIFE

TUESDAY SEPTEMBER 5, 2017 AT 5:30PM  
DELLA PIETRA FAMILY AUDITORIUM, SCGP ROOM 103

**GUEST SPEAKERS INCLUDE**

YOUNG-KEE KIM, CHAIR OF THE DEPARTMENT OF PHYSICS, UNIVERSITY OF CHICAGO  
JOE LYKKEN, DEPUTY DIRECTOR, FERMILAB  
MICHELANGELO MANGANO, HEAD OF THE LHC PHYSICS CENTER AT CERN

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SIMONS CENTER  
FOR GEOMETRY AND PHYSICS



Stony Brook University

Public lecture co-organized  
and sponsored by SCGP at  
5:30pm

Speakers:

*Young Kee-Kim*

*Joe Lykken*

*Michelangelo Mangano*

Implies we need to finish with our  
sessions by ~5pm.

The lecture is mainly meant for Long  
Island school students and teachers,  
so we will need to give priority to them.

In case we get the auditorium filled, we  
will arrange also for a re-transmission in  
Room 102 (>80 people capacity,  
in front of the Auditorium)

# WiFi

- *Eduroam* should work out of the box
- As an alternative, you can use the “WolfieNet-Guest” access points, using the username and password that everybody of you received from the e-mail account  
“Guest\_Wifi\_Request@stonybrook.edu”
- Please do not create a new username/password through the web interface, this will reset your account with a shorter-term one
- This provides SBU-wide internet access. Please let us know if you experience any problem!

# Coffee breaks & Lunch

- Coffee break today will be served directly outside the Auditorium by the SCGP Cafe
- Lunch is not included, but you have several good options (check the map you got in your folder):
  - SCGP Cafe, high-end restaurant quality at a cafe (~20\$+tax)
  - Dining on Campus (pretty good, a lot of choice and inexpensive)
    - SAC, Student Activity Center (<10\$)
    - East Side Dining (<10\$)
  - Several small restaurants close to campus, behind the train station and its vicinity

We are here



# Buses back to Ramada Hotel

- Look for yellow buses in the parking in front of the Simon's Center, they will bring you back from Campus to Ramada Hotel
- They will depart at:
  - 5:30pm (scheduled before Public lecture)
  - 8:15pm (scheduled after Public lecture)
- Please be on time!
- Please notice that tomorrow morning the buses from Ramada Hotel to Campus will be at 8:15 instead of 7:45  
(in such a way to be here just before start of sessions)

# Support

- We'd like to deeply thank the **Simon's Center** for co-sponsoring this Workshop, and hosting it in this wonderful Center!
  - Without that, it would have been very difficult to host this Workshop during the Semester
  - And we would not have had the opportunity to organize the Open Day!
- Thanks a lot also to the **Physics Department** and the **YITP**, for co-sponsoring this Event!
- Wish everybody a lively Open Day!
  - Don't hesitate to intervene in the discussions... this is really the main point of a workshop, and especially of an open day...  
(we invited one experimentalist and one theorist as chairs to moderate the discussions)