



# Weekly report

Abdualazem Fadol

April 13, 2020



INSTITUTE FOR  
COLLIDER  
PARTICLE  
PHYSICS



UNIVERSITY OF THE WITWATERSRAND

# DiHiggs to multilepton analysis

Checking the new samples

2

	Non-Res	$qq \rightarrow ZZ$	$ttZ$	$tt$	$VVV$	Total background
$4\ell$	$0.34 \pm 0.02$	$2770.42 \pm 5.53$	$163.75 \pm 1.00$	$2790.86 \pm 39.43$	$23.30 \pm 0.17$	$5748.33 \pm 46.13$
Total charge = 0	$0.32 \pm 0.02$	$2696.51 \pm 5.45$	$144.69 \pm 0.94$	$2204.25 \pm 35.04$	$21.72 \pm 0.16$	$5067.17 \pm 41.58$
Trigger Match	$0.32 \pm 0.02$	$2608.47 \pm 5.39$	$143.47 \pm 0.93$	$2018.67 \pm 33.43$	$21.64 \pm 0.16$	$4792.24 \pm 39.91$
Iso FixedCutLoose	$0.25 \pm 0.02$	$2201.41 \pm 4.98$	$111.29 \pm 0.81$	$79.98 \pm 6.73$	$19.78 \pm 0.15$	$2412.45 \pm 12.67$
$m_{\ell^+\ell^-}$ (SFOS) > 4 GeV	$0.23 \pm 0.02$	$1822.18 \pm 4.60$	$102.29 \pm 0.77$	$76.72 \pm 6.66$	$18.03 \pm 0.15$	$2019.22 \pm 12.17$
0-SFOS	$0.01 \pm 0.00$	$0.04 \pm 0.02$	$0.28 \pm 0.05$	$6.51 \pm 1.87$	$0.03 \pm 0.01$	$6.86 \pm 1.94$
1-SFOS	$0.10 \pm 0.00$	$31.33 \pm 0.60$	$55.64 \pm 0.57$	$39.39 \pm 4.87$	$8.82 \pm 0.11$	$135.18 \pm 6.14$
2-SFOS	$0.11 \pm 0.01$	$1790.81 \pm 4.56$	$46.37 \pm 0.52$	$30.82 \pm 4.14$	$9.18 \pm 0.10$	$1877.18 \pm 9.32$

Table: Old samples

	Non-Res	$qq \rightarrow ZZ$	$ttZ$	$tt$	$VVV$	Total background
$4\ell$	$0.39 \pm 0.02$	$8067.43 \pm 22.56$	$257.22 \pm 1.68$	$10463.67 \pm 148.81$	$25.34 \pm 0.18$	$18813.67 \pm 173.22$
Total charge = 0	$0.37 \pm 0.02$	$7875.07 \pm 22.35$	$216.35 \pm 1.52$	$8441.21 \pm 133.68$	$23.60 \pm 0.17$	$16556.23 \pm 157.72$
Trigger Match	$0.34 \pm 0.01$	$7453.23 \pm 21.92$	$212.66 \pm 1.50$	$7489.74 \pm 124.88$	$23.46 \pm 0.17$	$15179.09 \pm 148.47$
Iso FixedCutLoose	$0.26 \pm 0.01$	$6185.84 \pm 20.03$	$151.64 \pm 1.24$	$296.77 \pm 21.36$	$21.21 \pm 0.16$	$6655.46 \pm 42.78$
$m_{\ell^+\ell^-}$ (SFOS) > 4 GeV	$0.13 \pm 0.01$	$2270.29 \pm 13.74$	$71.27 \pm 0.84$	$100.54 \pm 12.90$	$10.06 \pm 0.11$	$2452.16 \pm 27.60$
0-SFOS	$0.02 \pm 0.00$	$0.13 \pm 0.05$	$0.51 \pm 0.09$	$15.23 \pm 3.08$	$0.03 \pm 0.01$	$15.91 \pm 3.22$
1-SFOS	$0.07 \pm 0.00$	$56.30 \pm 1.77$	$46.58 \pm 0.68$	$45.96 \pm 8.38$	$5.70 \pm 0.09$	$154.54 \pm 10.92$
2-SFOS	$0.05 \pm 0.00$	$2213.86 \pm 13.62$	$24.18 \pm 0.49$	$39.34 \pm 9.32$	$4.33 \pm 0.07$	$2281.70 \pm 23.50$

Table: New samples

$$R \rightarrow SH \rightarrow 4l + E_T^{\text{miss}}$$

New samples

□ RSH-11 mass points:

451544 ==> mR420, mH250  
451547 ==> mR670, mH500  
451550 ==> mR1170, mH1000  
451551 ==> mR400, mH220  
451559 ==> mR410, mH220  
451567 ==> mR420, mH220  
451574 ==> mR430, mH220  
451590 ==> mR580, mH220  
451582 ==> mR480, mH220  
451598 ==> mR880, mH220  
451606 ==> mR1380, mH220

□ AZH-12 mass point:

451614 ==> mA320, mH220  
451615 ==> mA350, mH250  
451618 ==> mA600, mH500  
451621 ==> mA1100, mH1000  
451622 ==> mA330, mH220  
451630 ==> mA340, mH220  
451638 ==> mA350, mH220  
451646 ==> mA360, mH220  
451654 ==> mA410, mH220  
451662 ==> mA510, mH220  
451670 ==> mA810, mH220  
451678 ==> mA1310, mH220

# $R \rightarrow SH \rightarrow 4l + E_T^{\text{miss}}$

New derivation production

The screenshot shows the ATLAS PanDA web interface. At the top, there's a navigation bar with "ATLAS PanDA" and various menu items. Below that, a header bar indicates the user is logged in as "Mohamed".

The main content area displays a request summary for "Request 30000". The summary includes fields for Request ID (30000), Description ("RSH train production with 21.2, 27.0 and 30.0in"), Reference ("ATLASPROC-ESL"), Manager ("atlas-ftp production"), Physic group ("PHYS"), Project ("rcFE\_13TeV"), and Status ("DEFT").

Below the summary, there are buttons for "Add Deriv", "HashTags", "last comment", and "New comment". A link "Show/Hide long description" is also present. The "Total input: 27, from them approved: 27" is shown.

There are filters for "Select All", "Filter by: site: ESA", "Filter by status: all", and "Sort: site ID".

A "Select pattern" dropdown menu is visible, with "Show" and "Hide" buttons. Below this, a table lists three production events, each with a "1" in the first column and a "submitted" status. The table also shows "Produced events: 30000" for each event.

- There's a missing dataset from the last production "346383". So we request new tag and there're more signal samples for the RSH coming.

$$R \rightarrow SH \rightarrow 4l + E_T^{\text{miss}}$$

Samples production with new ASG Analysis Release



- We are going to use the latest release 21.2.116;
- Still debugging the code as lots of problem arises;
- This is due to the new implementation of CDI (March);
- We need to report next week on HBSM; and
- I'll be dedicating this week to prepare.

# Qualification Task

Moving to new tag

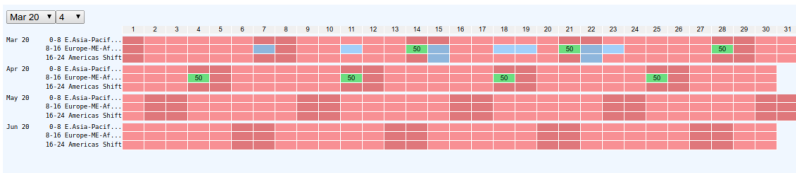
- There's a problem with old samples;
- So a new samples with new tag are produced; and
- Now need to run over the new tag and see.

# ADCoS shifts

- So far finished 12 shifts as a trainee;
- Promoted to ADCoS senior shifter

## - Task 529223 - ADCoS Trainee Shifts

Shifter (ADCoS Trainee Shifts at 50%)



### Class 2

System	Activity	Task	2017	2018	2019	2020	Total
General Tasks	Computing/Software	ADCoS Senior shifts				10.09	10.09
General Tasks	Computing/Software	ADCoS Trainee shifts				6.00	6.00
TiLE	Detector Operation	Tile DQ validator	7.00				7.00
<b>Total</b>			<b>7.00</b>	<b>0.00</b>	<b>0.00</b>	<b>16.09</b>	<b>23.09</b>
<b>Total FTE (shifts/243)</b>			<b>0.03</b>			<b>0.07</b>	<b>0.10</b>



**Thank you!**

