

# Angular distribution of background

Marcin Chrząszcz<sup>1,2</sup>, Nicola Serra<sup>1</sup>



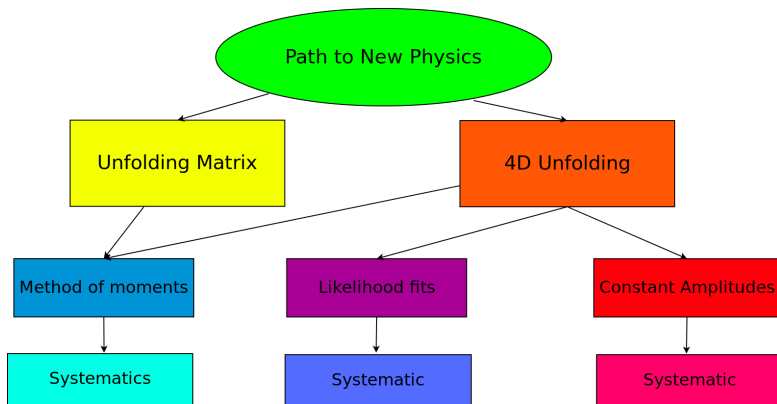
University of  
Zurich<sup>UZH</sup>



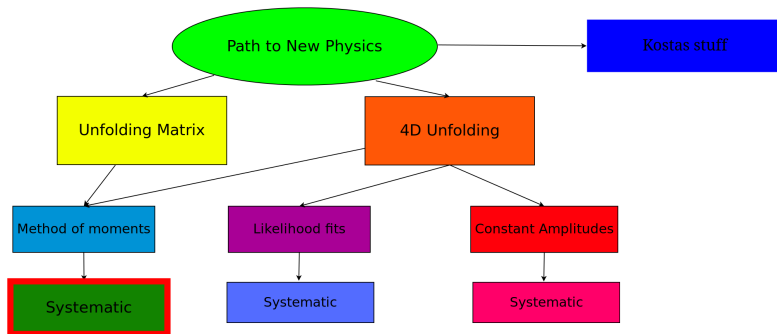
<sup>1</sup> University of Zurich,  
<sup>2</sup> Institute of Nuclear Physics, Krakow

May 27, 2014

# Quo vadis $B^0 \rightarrow K^* \mu\mu$ ?

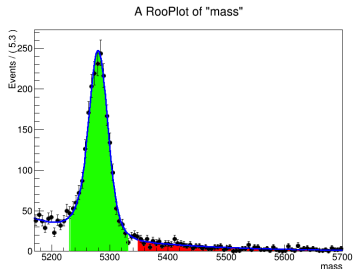


# Quo vadis $B^0 \rightarrow K^* \mu\mu$ ?



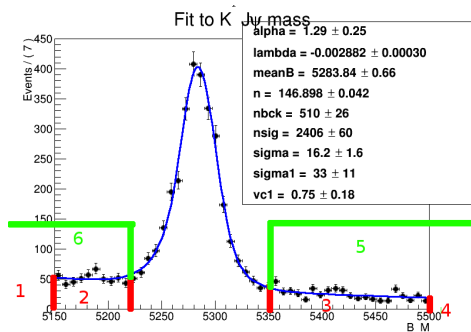
# Assumptions

- Each method assumes that background angular distribution is the same in the red and green region.
- This might not be necessary the true.
- Let's test this using method of moments.



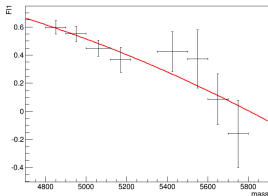
# Studied background region

- Divided mass regions in different  $q^2$  bins.
- To each calculate the  $S_X$  components and see if there is a clear trend.
- Try fitting and seeing the impact in the signal window.

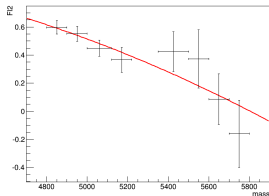


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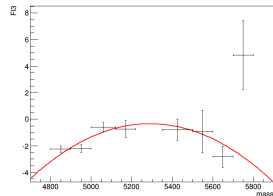
Q[0\_1-0\_98]\_F1



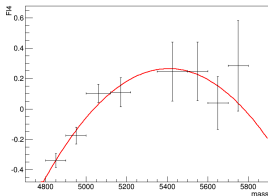
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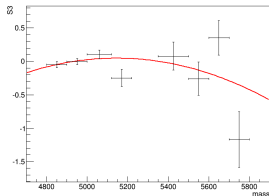
Q[0\_1-0\_98]\_F3



Q[0\_1-0\_98]\_F4



Q[0\_1-0\_98]\_S3

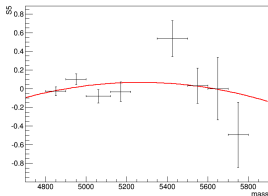


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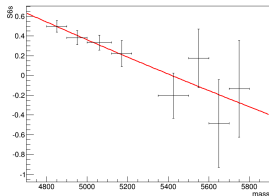


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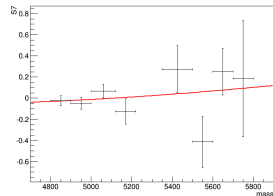
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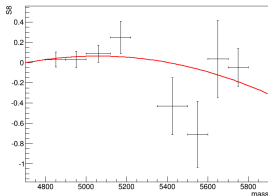
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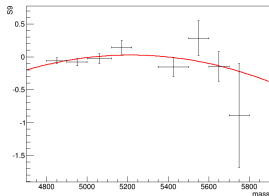
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Q[0\_1-0\_98]\_S8

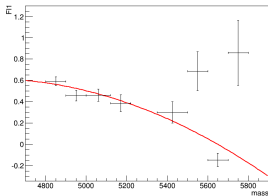


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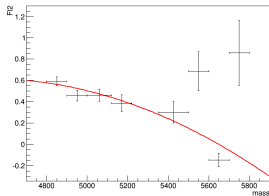


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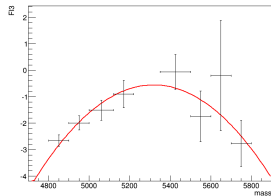
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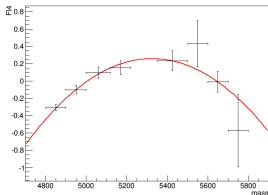
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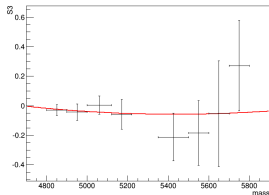
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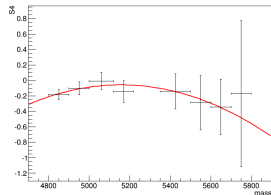
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Q[1\_1-2]\_S3



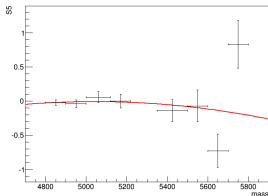
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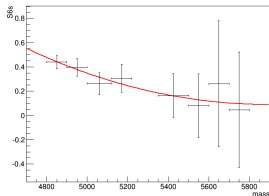


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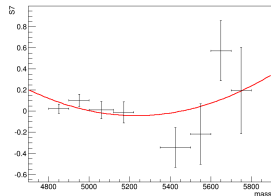
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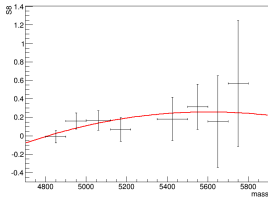
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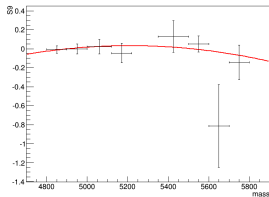
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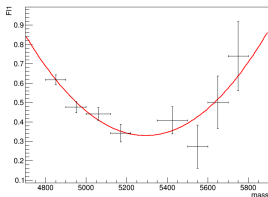


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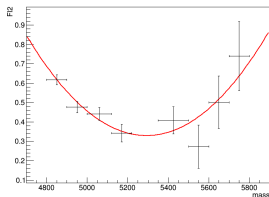


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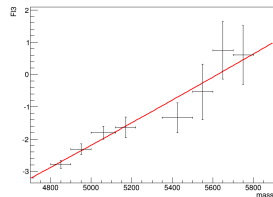
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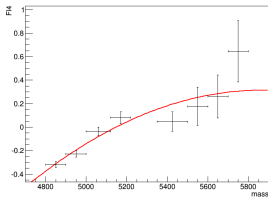
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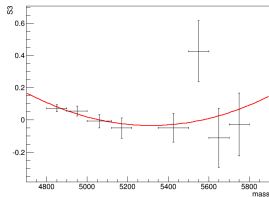
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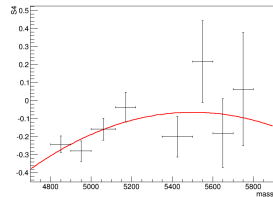
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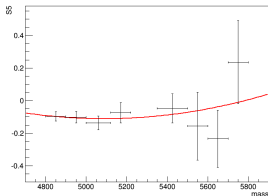


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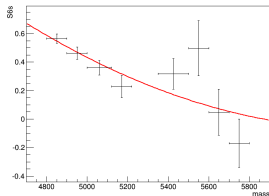


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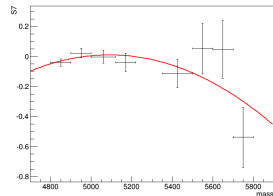
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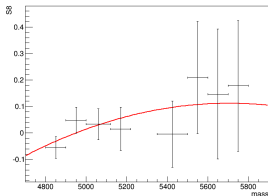
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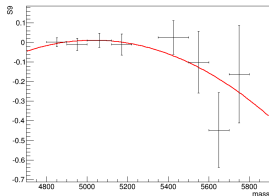
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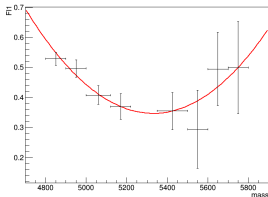


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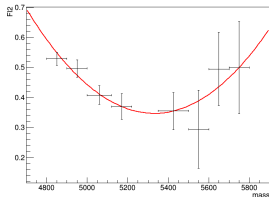


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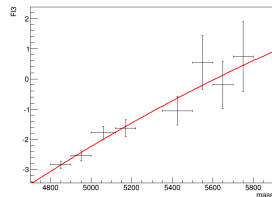
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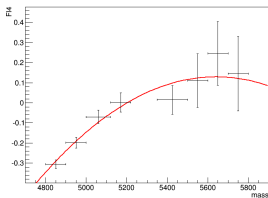
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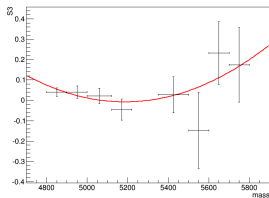
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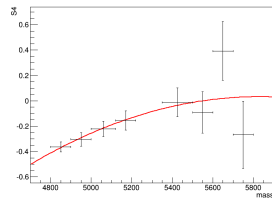
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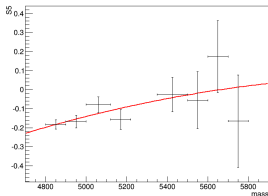


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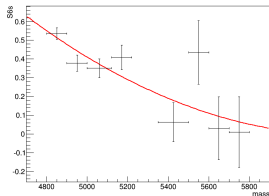


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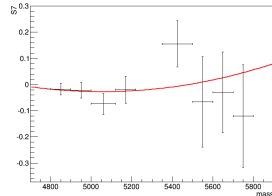
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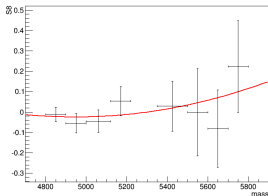
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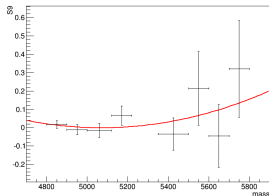
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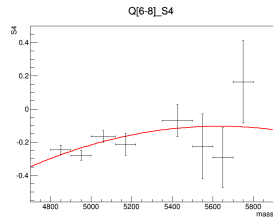
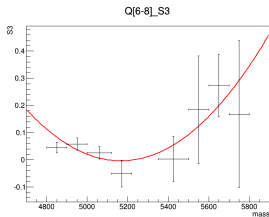
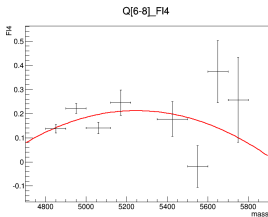
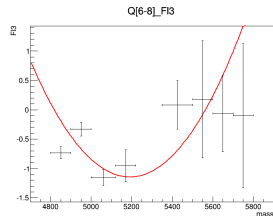
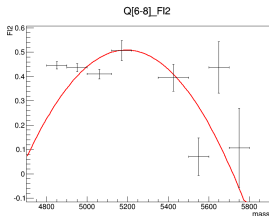
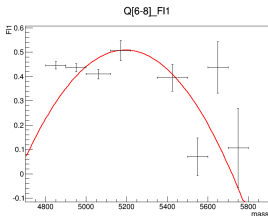
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Q[4-6]\_S9

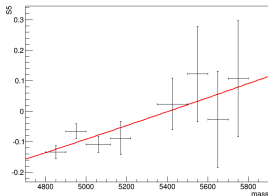


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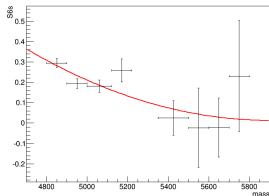


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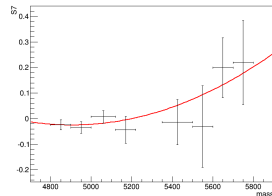
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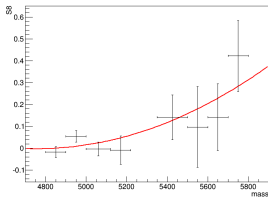
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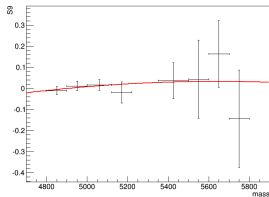
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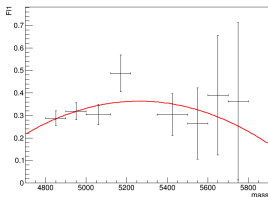


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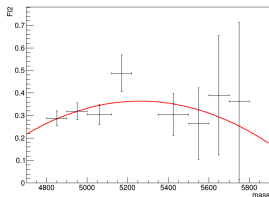


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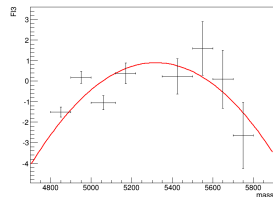
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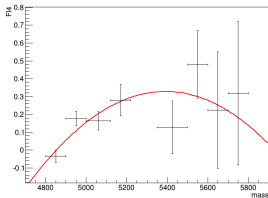
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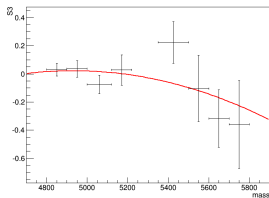
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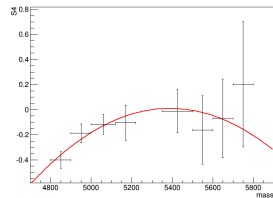
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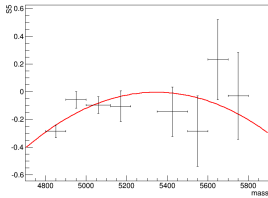
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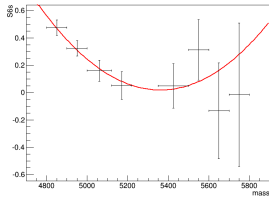


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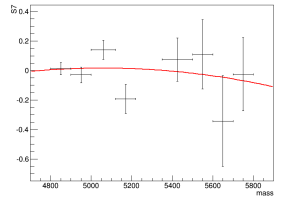
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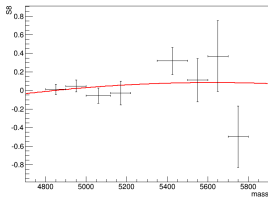
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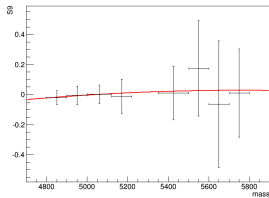
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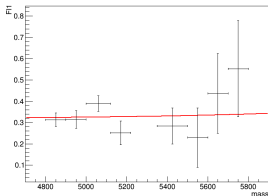


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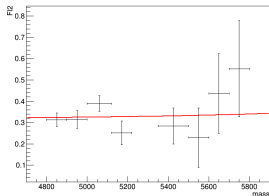


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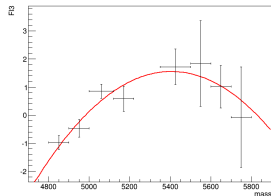
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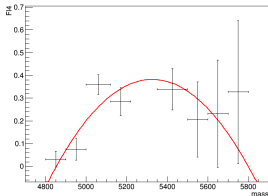
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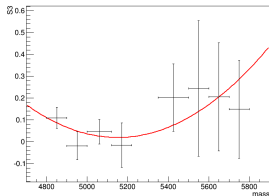
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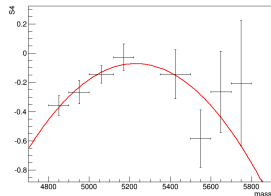
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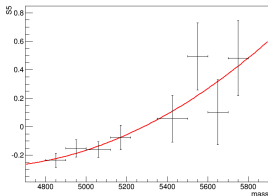


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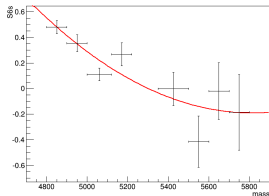


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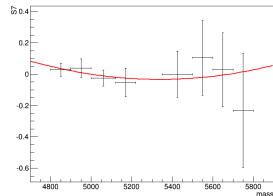
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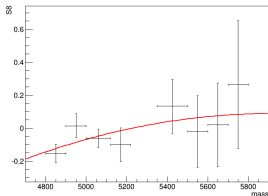
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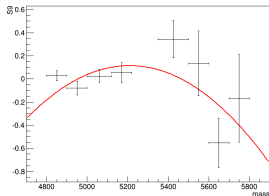
Q[11\_75-12\_5]\_S7



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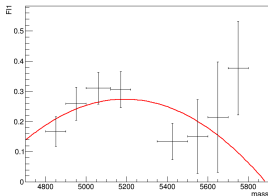


Q[11\_75-12\_5]\_S9

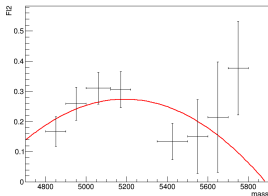


# Studied background region

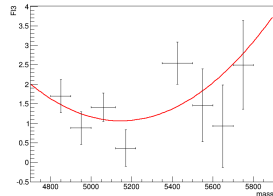
Q[15-17]\_F1



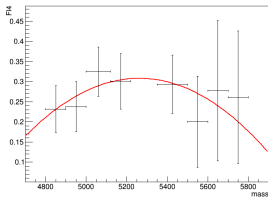
Q[15-17]\_F2



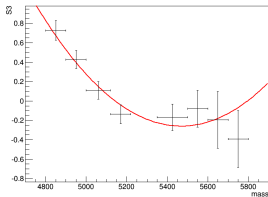
Q[15-17]\_F3



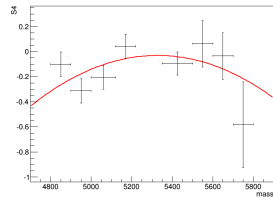
Q[15-17]\_F4



Q[15-17]\_S3

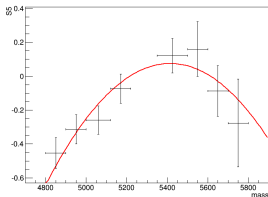


Q[15-17]\_S4

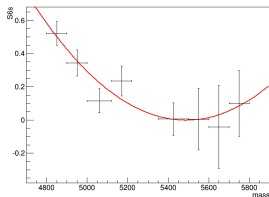


# Studied background region

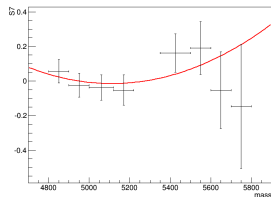
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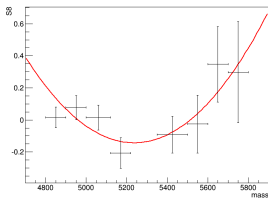
Q[15-17]\_S6s



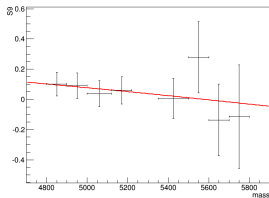
Q[15-17]\_S7



Q[15-17]\_S8

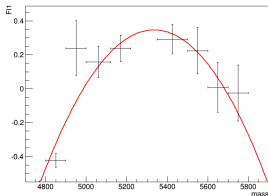


Q[15-17]\_S9

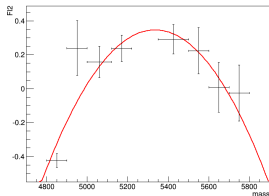


# Studied background region

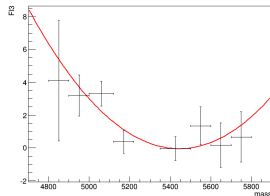
Q[17-19]\_F1



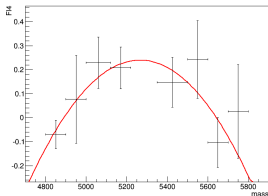
Q[17-19]\_F2



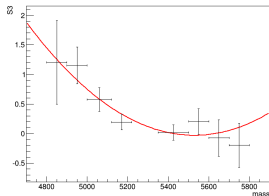
Q[17-19]\_F3



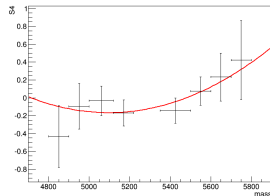
Q[17-19]\_F4



Q[17-19]\_S3



Q[17-19]\_S4



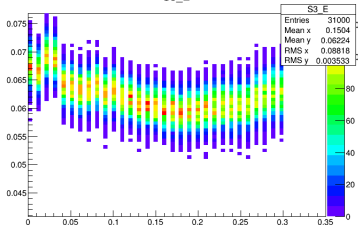
# Conclusion

- There is small dependence on background and mass.
- For MM easy to assign systematic to it.
- Fits need some more thinking.

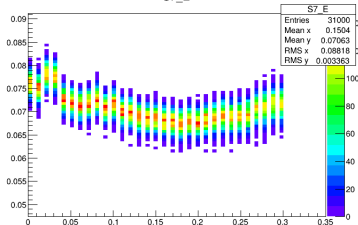


# Thing that Kostas just reminded me

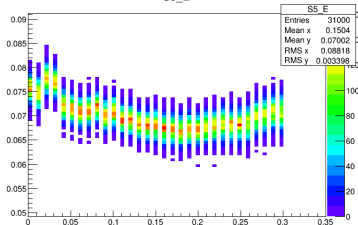
S3\_E



S7\_E



S5\_E



S9\_E

