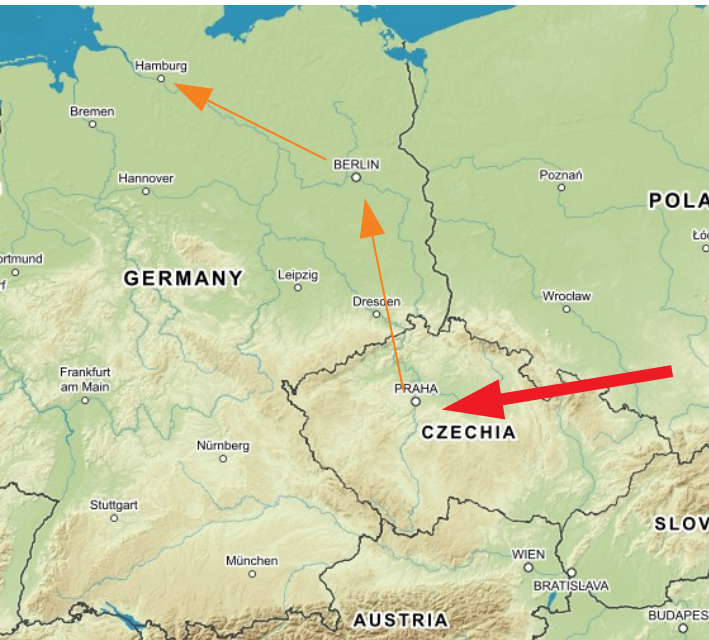


# FH Fellow meeting 2022

Filip Nechanský

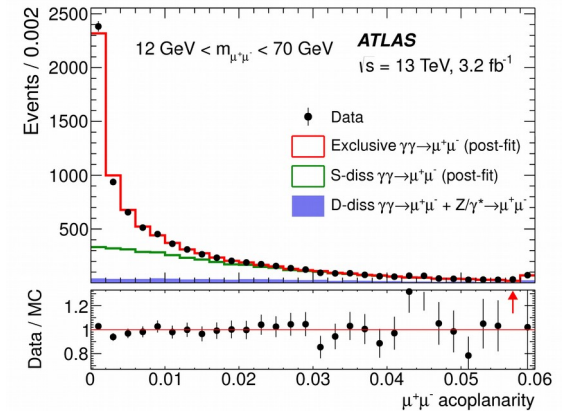
# About me

- From Prague



# About me

- From Prague
  - Including bachelor/master  
(Experimental particle physics at Czech Technical University )
- Joined  during bachelor
  - Particle track properties
  - Photon-photon interactions



<https://arxiv.org/abs/1708.04053>

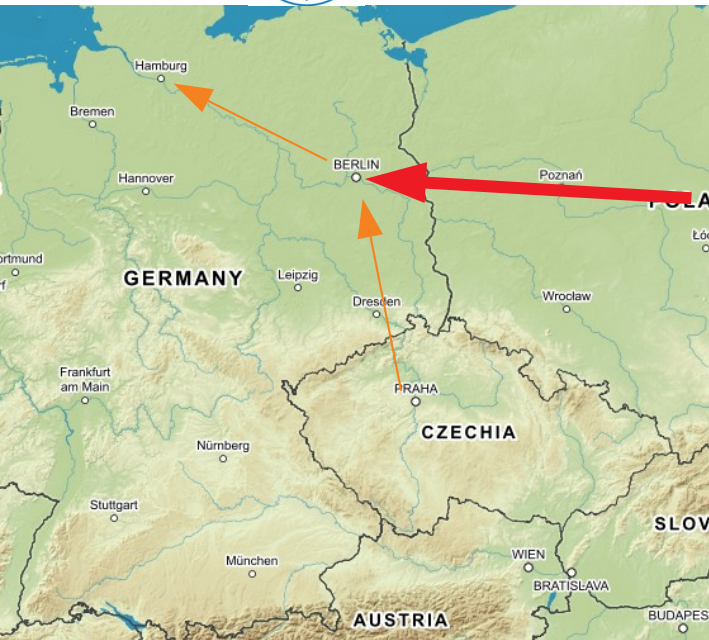


# About me

- PhD in Berlin/Zeuthen



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# About me

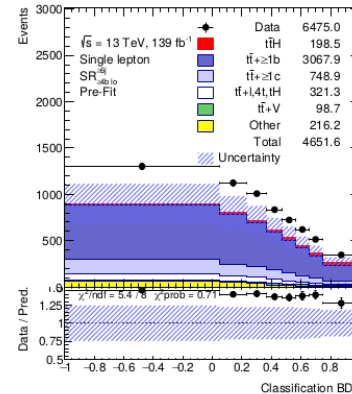
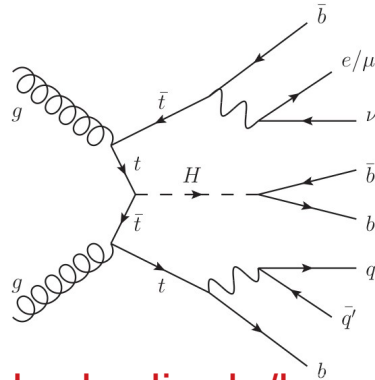
- PhD in Berlin/Zeuthen



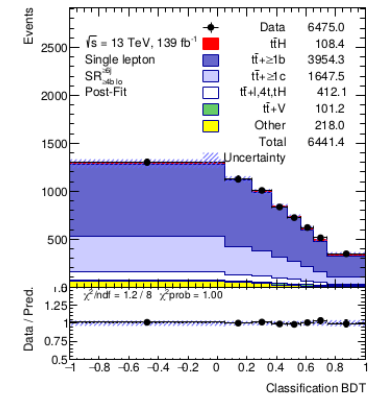
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- Thesis on top-Higgs coupling - production of  $ttH(bb)$



→  
fit



<https://edoc.hu-berlin.de/handle/18452/23726>

# About me

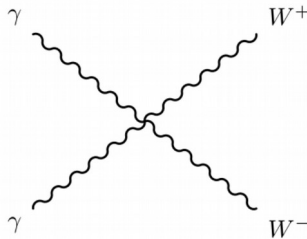
- PhD in Berlin/Zeuthen



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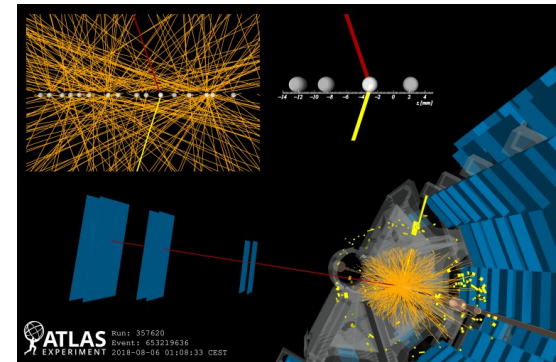


- Thesis on top-Higgs coupling - production of  $ttH(bb)$
- Publication on photon-photon to  $WW$



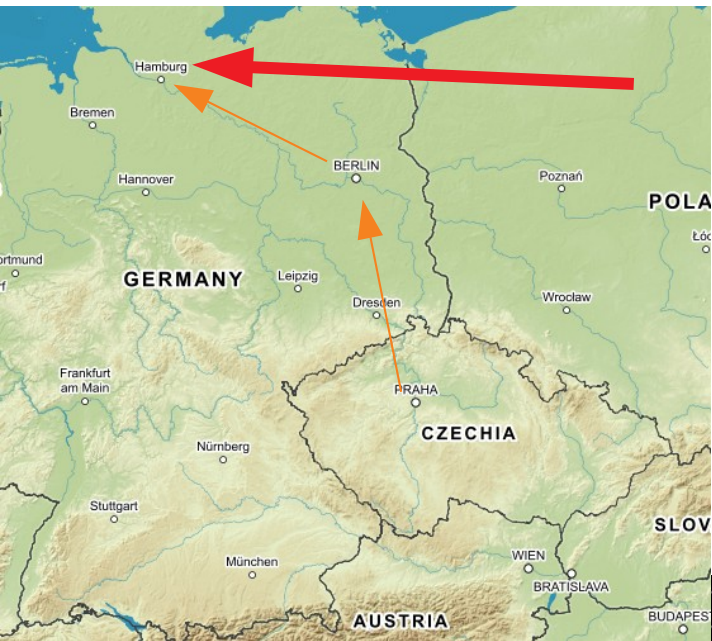
<https://arxiv.org/abs/2010.04019>

- Detector upgrade, track resolution, teaching





# And now Hamburg!

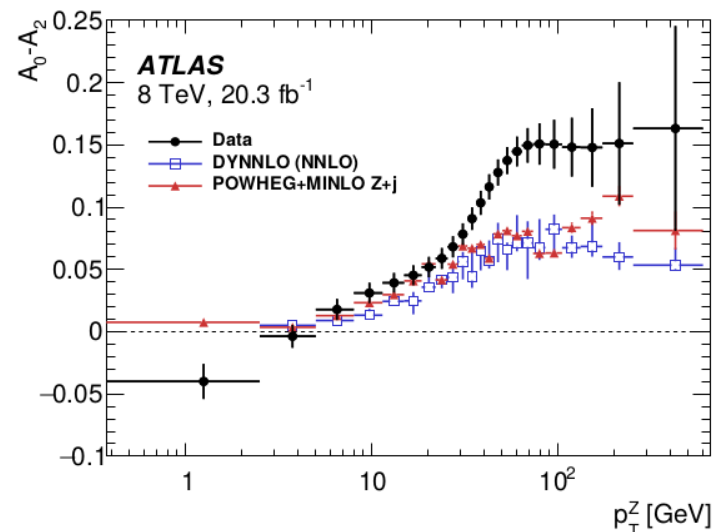


# My current work

- Main analysis:
  - Measurement of angular coefficients in Z-boson events:

$$\frac{d\sigma}{dp_T^Z dy^Z dm^Z d\cos\theta d\phi} = \frac{3}{16\pi} \frac{d\sigma^{U+L}}{dp_T^Z dy^Z dm^Z} \left\{ (1 + \cos^2\theta) + \frac{1}{2} A_0 (1 - 3\cos^2\theta) + A_1 \sin 2\theta \cos\phi + \frac{1}{2} A_2 \sin^2\theta \cos 2\phi + A_3 \sin\theta \cos\phi + A_4 \cos\theta + A_5 \sin^2\theta \sin 2\phi + A_6 \sin 2\theta \sin\phi + A_7 \sin\theta \sin\phi \right\}.$$

- Technical task:
  - Electron properties – corrections and software development
- Smaller involvement:
  - Continuation of the photon-photon to WW measurement
  - Analysis of charged track properties in early LHC data (Run 3)





# My favorite science plot

- [https://www.digizyme.com/cst\\_landscapes.html](https://www.digizyme.com/cst_landscapes.html)
- “3D rendering of a eukaryotic cell is modeled using X-ray, nuclear magnetic resonance (NMR), and cryo-electron microscopy datasets for all of its molecular actors.”
- Stark contrast to the “simple” processes I usually study

