

About John

Origin Story

Highlander

- Already accustomed to wet & cold summers

University of Glasgow

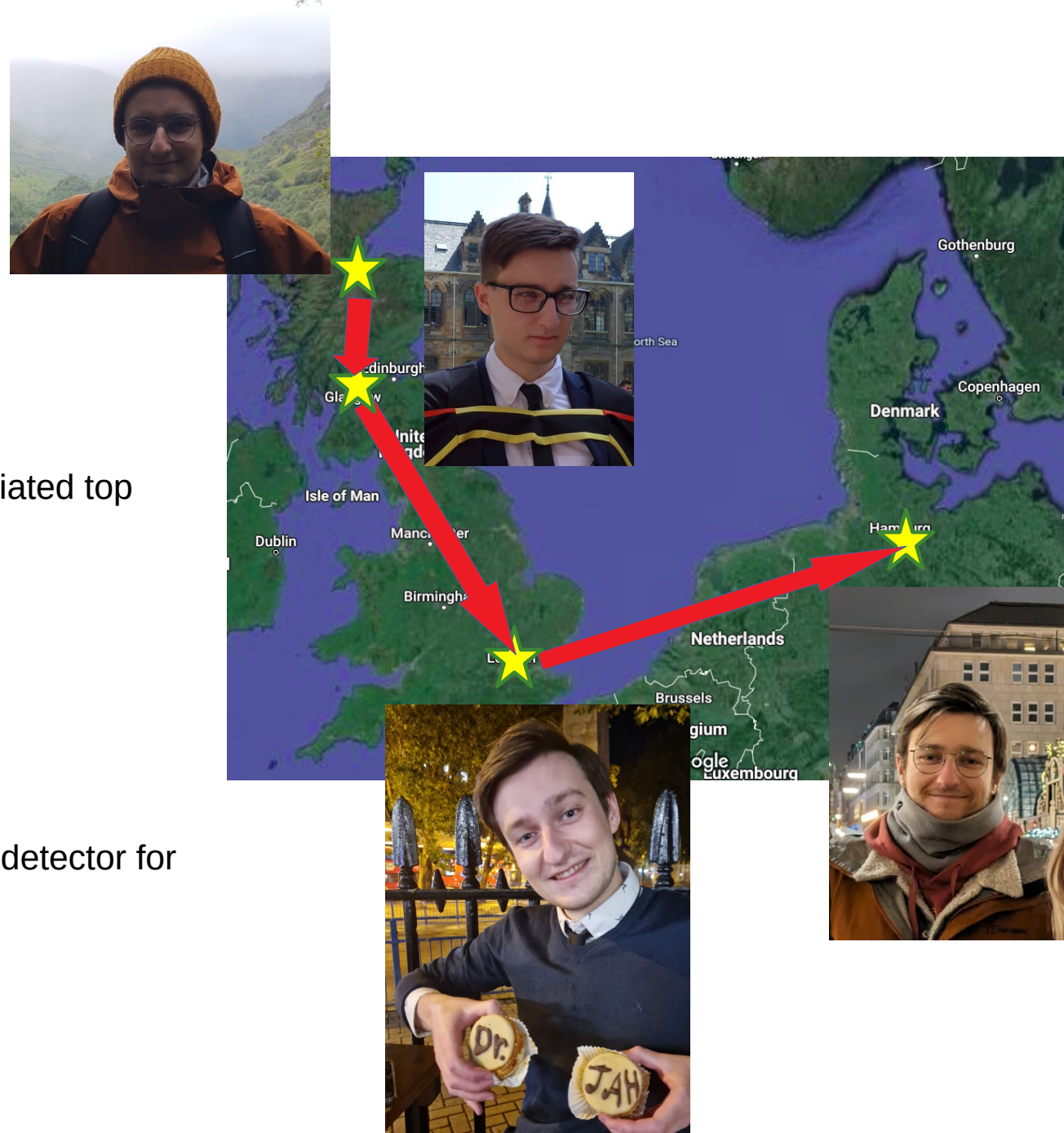
- Integrated (5 year!) MSci Physics degree
- Feasibility analysis in ATLAS group of using dileptonic associated top production Higgs $\rightarrow b\bar{b}$ boosted decays

University College London

- Start a PhD in late 2019 at UCL... great timing
- Time spent there and on-site at:

DESY

- Start work on the SFQED Experiment LUXE
- Largely detector work, incl. prototyping, simulating, testing a detector for reconstructing energies of $\sim 10^9$ e⁻ @ ~ 10 GeV



Tauons in ATLAS Ion Collisions & Silicon Strip Sensors in an Endcap

LHC is a Photon Collider!

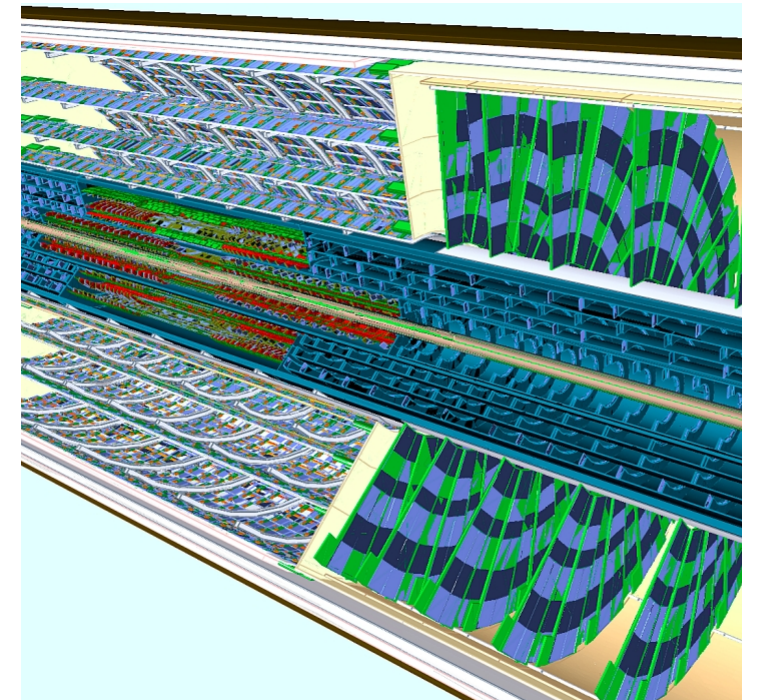
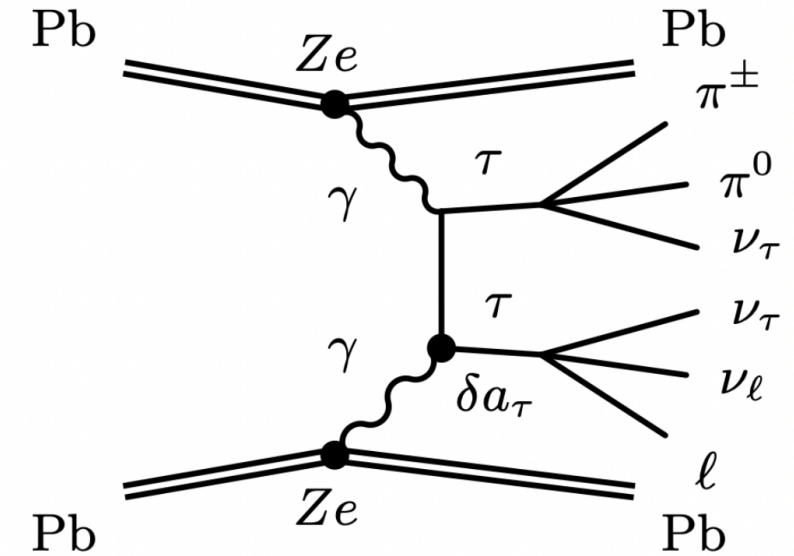
Muon g-2 value offers promising experimental insights, but what about this value for the tau? BSM effects in the quantum soup may influence heavier τ g-2 more

- Tau-photon coupling, and therefore cross-section of interaction opposite, dependent on τ g-2
- Measure this σ with ion-ion collisions (or near misses!) at LHC in ATLAS detector

ATLAS Needs an Inner Detector Upgrade!

Inner detector silicon tracker sensors come in two architectures, pixels and strips

- DESY on the hook to deliver one of the strip module endcaps
- 12 modules of 6 flavours live on 'petals'; 3456 modules on 192 petals in one EC
- These modules need to be 'loaded' on carbon-fiber 'petal' structures with accuracy



My Favourite Plot

Photographs are Histograms!

Currently: mid-infrared capture of the ‘Pillars of Creation’ from the James Webb Space Telescope

Astrophotography is not only scientifically valuable, or technologically impressive, but also renders images of great natural beauty :)

Pillars of Creation

- Example of ‘Elephant Trunks’, enormous structures of ionised gas light-years across
- Only found near massive O, B type stars producing ‘solar wind’

