

Research Fellow: LHCb Birmingham

3 May 2023

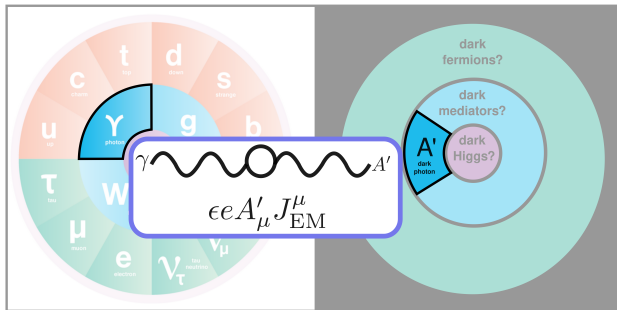
Dan Johnson, Nigel Watson



UNIVERSITY OF
BIRMINGHAM

1. Searching for dark-matter mediators

- The hidden-sector paradigm

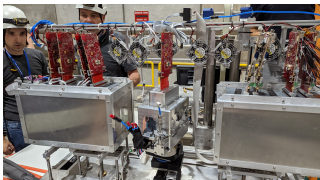


- 4 portals: 4 new particles (11 'benchmark searches')
 - Dark photon
 - Higgs-like particle
 - Sterile neutrino
 - Axion-like particle: to photons, gluons, or fermions

2. LHCb in Run 5

Demonstrating 4D tracking with the TimePix4 telescope

- Join the TimePix4 testbeam effort to finalise a telescope to characterise technology for LHCb's innermost tracker



Preparing the Run 5 VELO (the LHCb 'inner tracker')

- R&D for cutting-edge silicon pixel tracker, with timing (sensors; read-out)

LHCb simulation

- Optimisation of future detector, particularly the VELO
- Frameworks to monitor simulation of the rapidly-evolving HL-LHCb concept

The post

- New PDRA post for Birmingham (2 academics; 1 postdoc; 3 students)
- Full time, 2.5 years
- Start date: up for discussion
- Location: Birmingham/CERN
- Deadline: 28 May
- Definitive job details: <https://inspirehep.net/jobs/2653077>