

CMS/milliQan postdoc with Ohio State, based at CERN
<https://inspirehep.net/jobs/2157566>

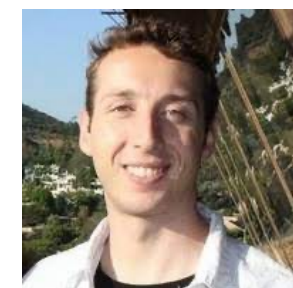
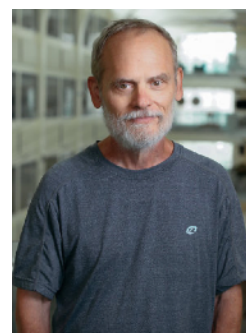
Christopher S. Hill
chill@physics.osu.edu
Nov. 28, 2022



Ohio State CMS Group



- Ohio State was part of the first wave of U.S. institutes to join CMS in 1994, playing a leading role in design/construction of CSC electronics for EMU
- The OSU CMS group currently has 3 faculty members
 - *Stan Durkin, emeritus*
 - *Brian Winer*
 - *Myself*
- We have 1 scientist/engineer (Ben Bylsma)
 - *He is retiring in 2024, we are looking to hire his replacement with this position*
- We currently have 2 postdocs (Brent, Matt)
- We currently have 5 Ph.D. students (Kai, Estefany, Mike, Ashwin, Ryan)



Job Description



The Ohio State University (OSU) invites applications for a postdoctoral research position to work on the CMS and milliQan experiments at the LHC.

The successful candidate will be expected to play a leading role in both the HL-LHC upgrade of the CMS detector and the analysis of data from Run 3 of the LHC. Successful applicants will strengthen the existing efforts of the OSU CMS group in these areas. In particular, for the HL-LHC this hire will join either the TFPX silicon pixel detector construction project where OSU is one of the two module testing centers in the US, or the endcap muon project where OSU is involved in upgrades to the front-end electronics. For data analysis, the hire will be encouraged to develop innovative strategies to search for BSM physics that complement the group's existing analyses, which for the past decade have been at the forefront of searches for long-lived particles (LLPs).

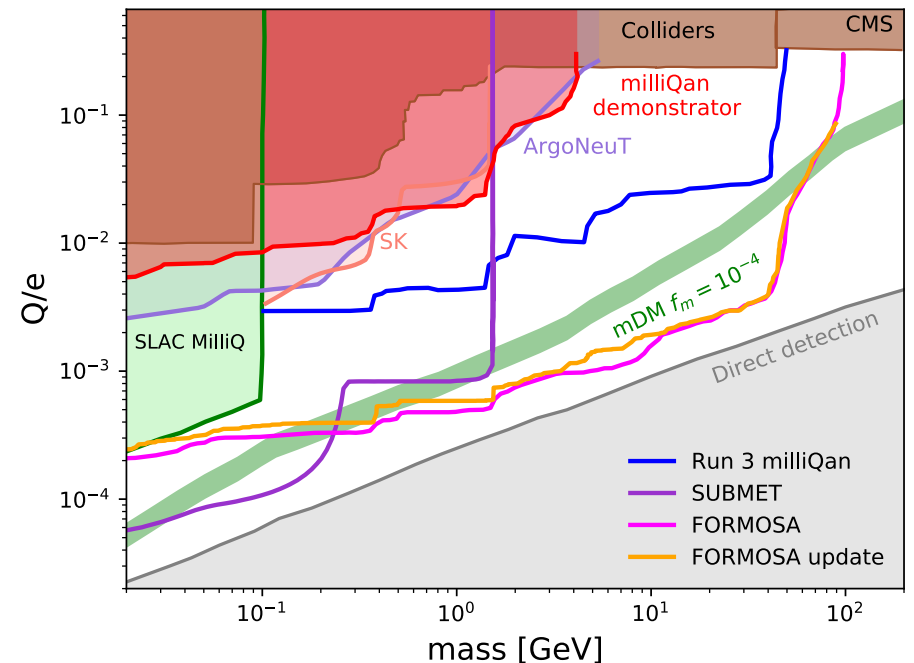
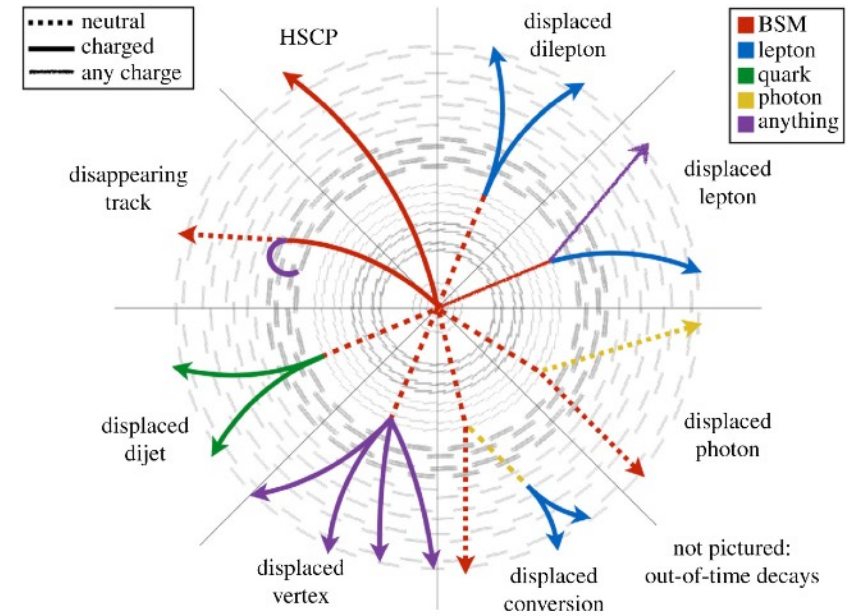
This OSU group is also a founding member of milliQan, a proposed experiment at the LHC designed to detect millicharged particles produced at the CMS IP that has already published its first physics results in *Phys.Rev.D* 102 (2020) 3, 032002. If a candidate were interested, they would have the possibility to spend a fraction of their time on milliQan (and development of future milliQan-like experiments, e.g., SUBMET, FORMOSA) in addition to CMS.

A PhD in experimental high energy physics, or a closely related discipline, is required for this position. Extended residence at CERN, or frequent travel to CERN if the applicant prefers to be based in Columbus will be necessary.

Physics Research



- Long-lived particles:
 - *I am one of the “founding fathers” of LLP searches at the LHC*
 - *Developed many original analyses CMS ... repeat or design something new*
 - **Disappearing tracks**
 - **Displaced leptons**
 - **Stopped particles**
 - **Fractional particles**
 - *3 past postdocs have been EXO LLP conveners*
- milliQan experiment
 - *I am co-founder and co-spokesperson*
 - *1/2 built, but taking data already*



Shorter Job Description



- The hire will work with OSU students and myself on:
 - *CMS Run 3 data analysis*
 - **LLPs**
 - *milliQan Run 3 data analysis*
 - *CMS operations at CERN*
 - **EMU or Tracker**
 - *milliQan operations at CERN*
 - **Data taking, “DOC” shifts**
- ***The job is based at CERN***
- ***Position is open until filled***
- ***1 yr contract, renewable up to 5 yrs***



How to apply



Qualified candidates should send a curriculum vitae, a list of primary publications, a statement of research interest, and arrange for three reference letters to be sent by email to:

Prof. Christopher. S. Hill
The Ohio State University
Department of Physics
191 West Woodruff Avenue
Columbus, Ohio 43210-1117
chill@physics.osu.edu

Review of applications will begin upon receipt and continue until the position is filled. E-mail inquiries should be sent to chill@physics.osu.edu

To build a diverse workforce, Ohio State encourages applications from women, minorities, veterans, and individuals with disabilities. Flexible work options are available. Ohio State is an NSF ADVANCE Institution, EEO/AA employer.



Additional Material:

A bit about The Ohio State University

(even though you may never actually go there since you'll be based at CERN)

Flagship public university for state of Ohio



**THE OHIO STATE
UNIVERSITY**

OSU in Columbus, OH

- *The capital and largest city*
- *pop. ~1M*



One of the largest US Universities



- Founded in 1870 as one of the “land grant” universities
- *Morrill Act, signed by Lincoln as a response to the industrial revolution*
- 61,000 students
- 46,000 of them undergraduates
- One of the largest employers in the state
- 27,000 administrative staff
- 7,300 academic staff



OSU Physics Department



- Also one of the largest in US
- 60 faculty, wide range of research

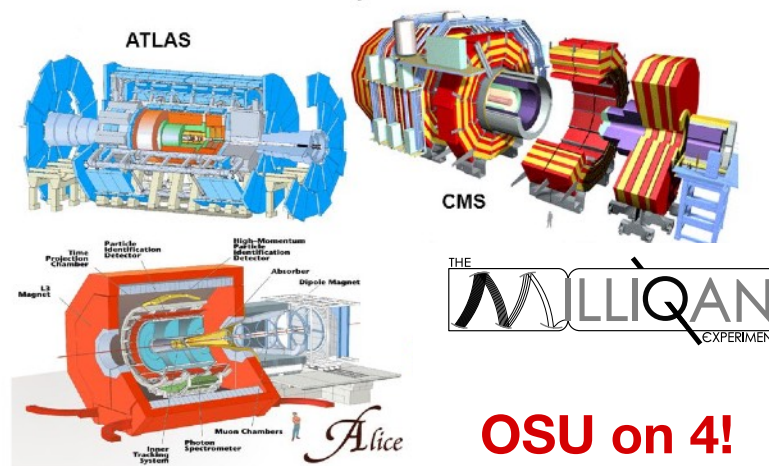
- *AMO, biophysics, condensed matter, nuclear, astrophysics, cosmology, PER, and of course HEP*



Ken Wilson,
OSU 1988–2008



LHC Experiments



OSU on 4!

Last but not least, 🏈 is a big part of life at OSU ...

Go Buckeyes!

