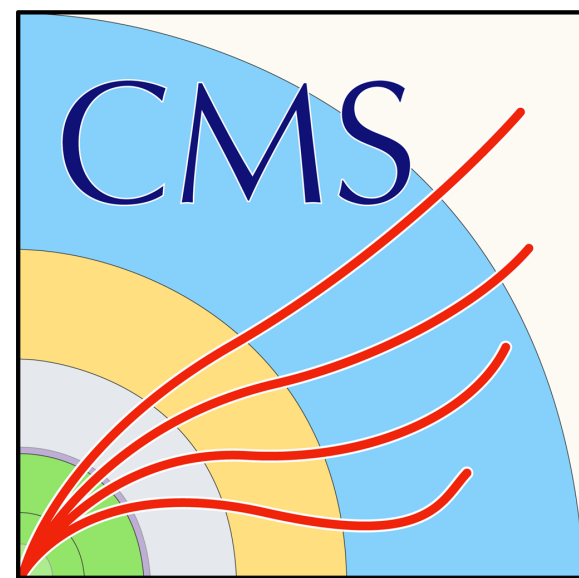


# Postdoctoral position at the University of Cyprus

*LHC Job Matching Event (JMEd) Fall '24*



University  
of Cyprus

Halil Saka  
November 27, 2024

# Cyprus in a nutshell

Cyprus is an **associated member** state of CERN

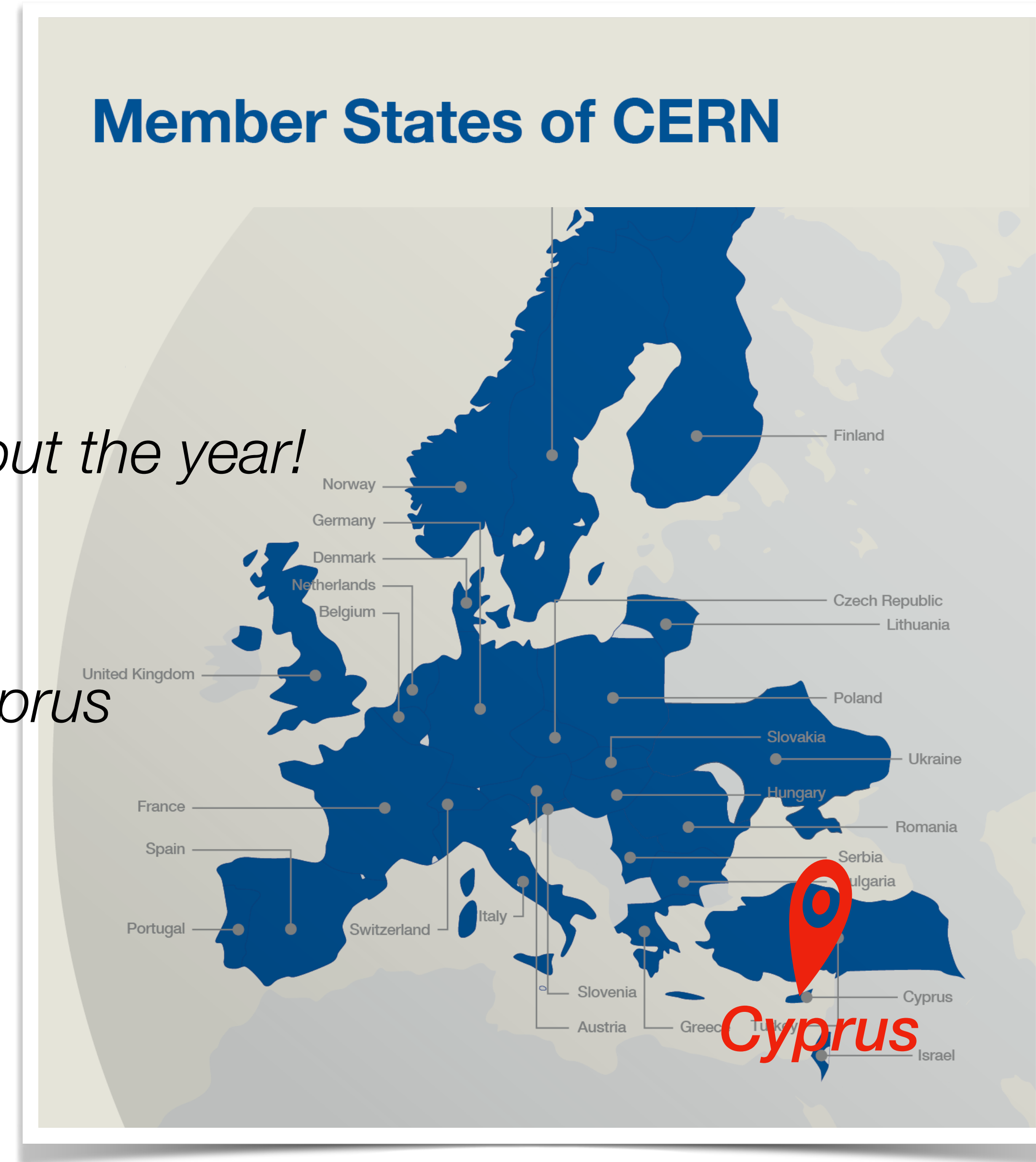
- support for **travel** to CERN
- easy access to Geneva (many daily flights)
- and when not traveling, **great weather** throughout the year!

## University of Cyprus:

- the **flagship institution** of particle physics in Cyprus
- located in the capital city, **Nicosia**

## UCY Experimental Particle Physics group:

- Active in CMS since the **beginning of the LHC** program





# UCY CMS Group

Prof. Fotios Ptochos,  
*(also see his session today!)*

Prof. Halil Saka



- + 2 Postdoctoral researchers
- + 4 PhD Students
- + fellow faculty members in theoretical particle physics

We are active in multiple **analysis/software/detector** fronts:

- All BSM PAGs [EXO, B2G, SUS]
- Tau/JME POGs
- HCAL Subdetector (operations and Phase-2 upgrades)
- Trigger/DAQ monitoring

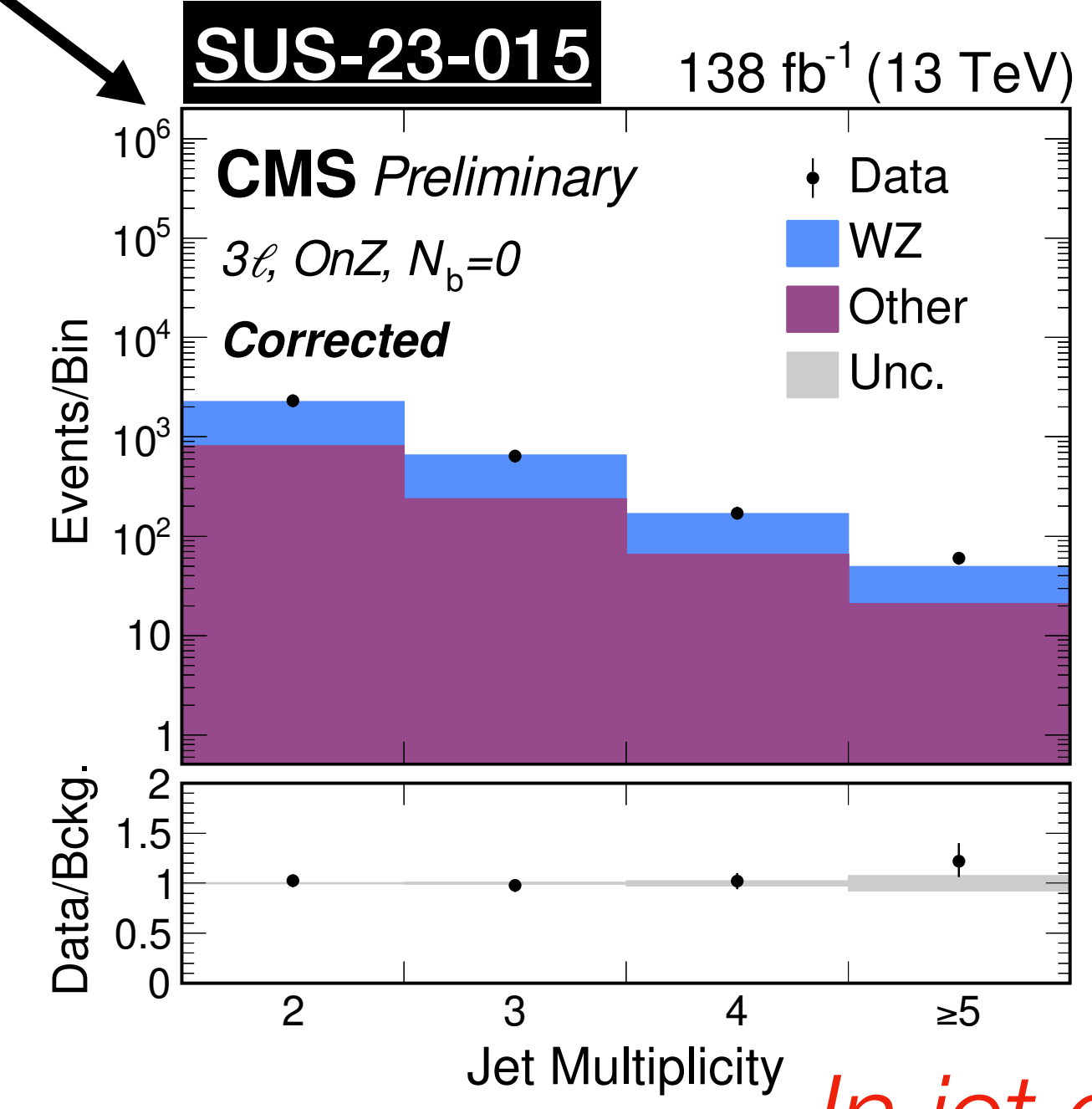
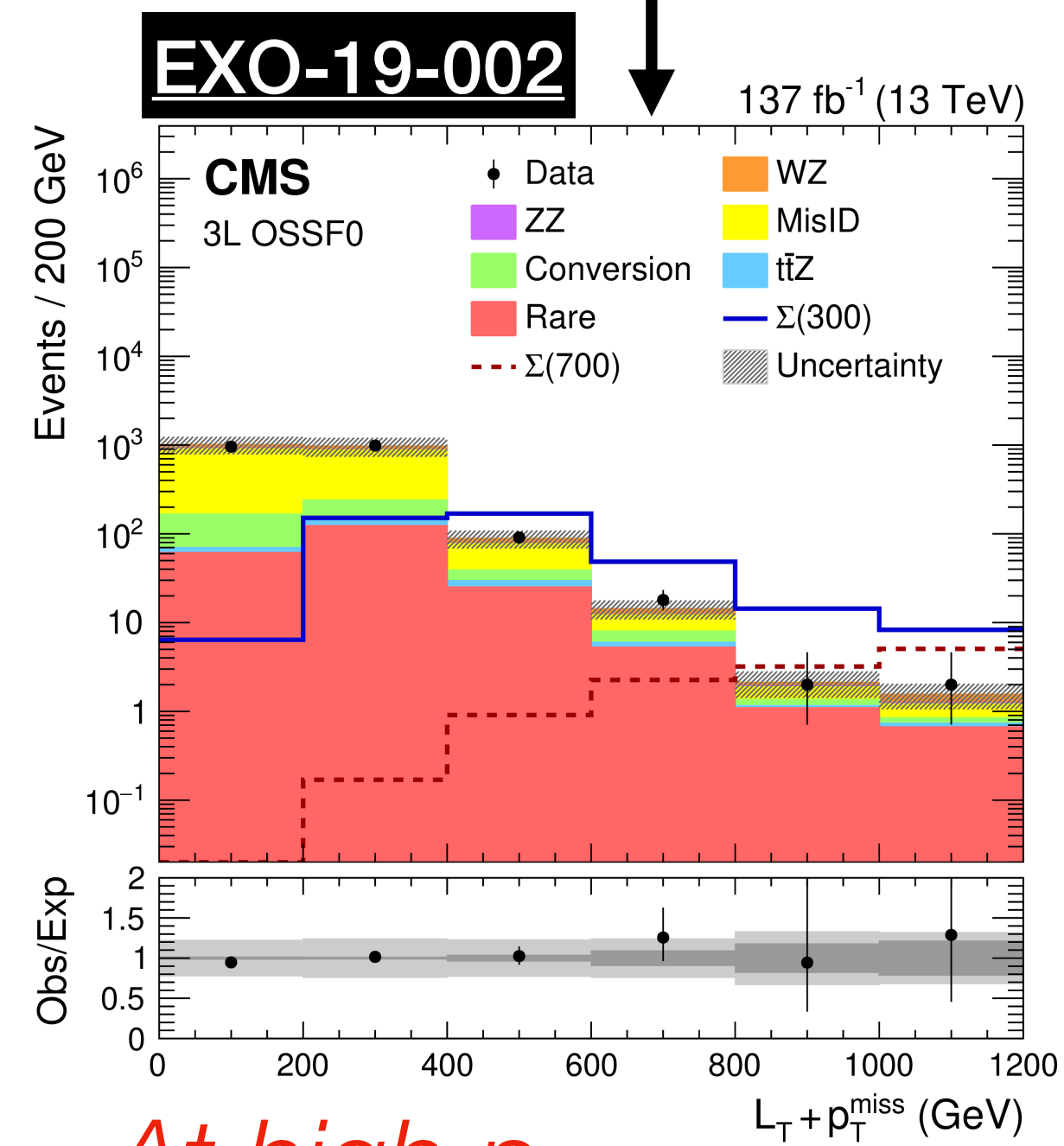
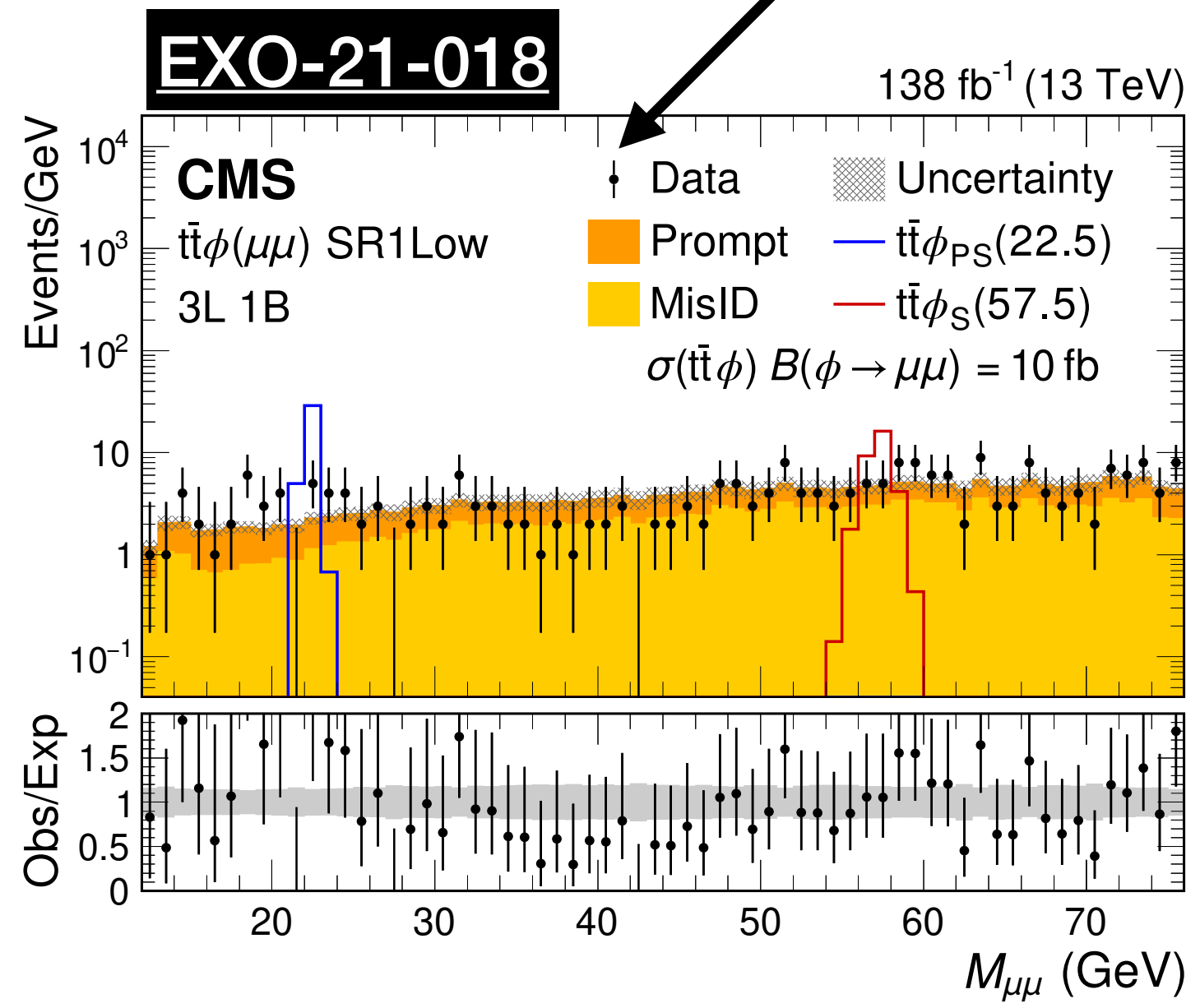
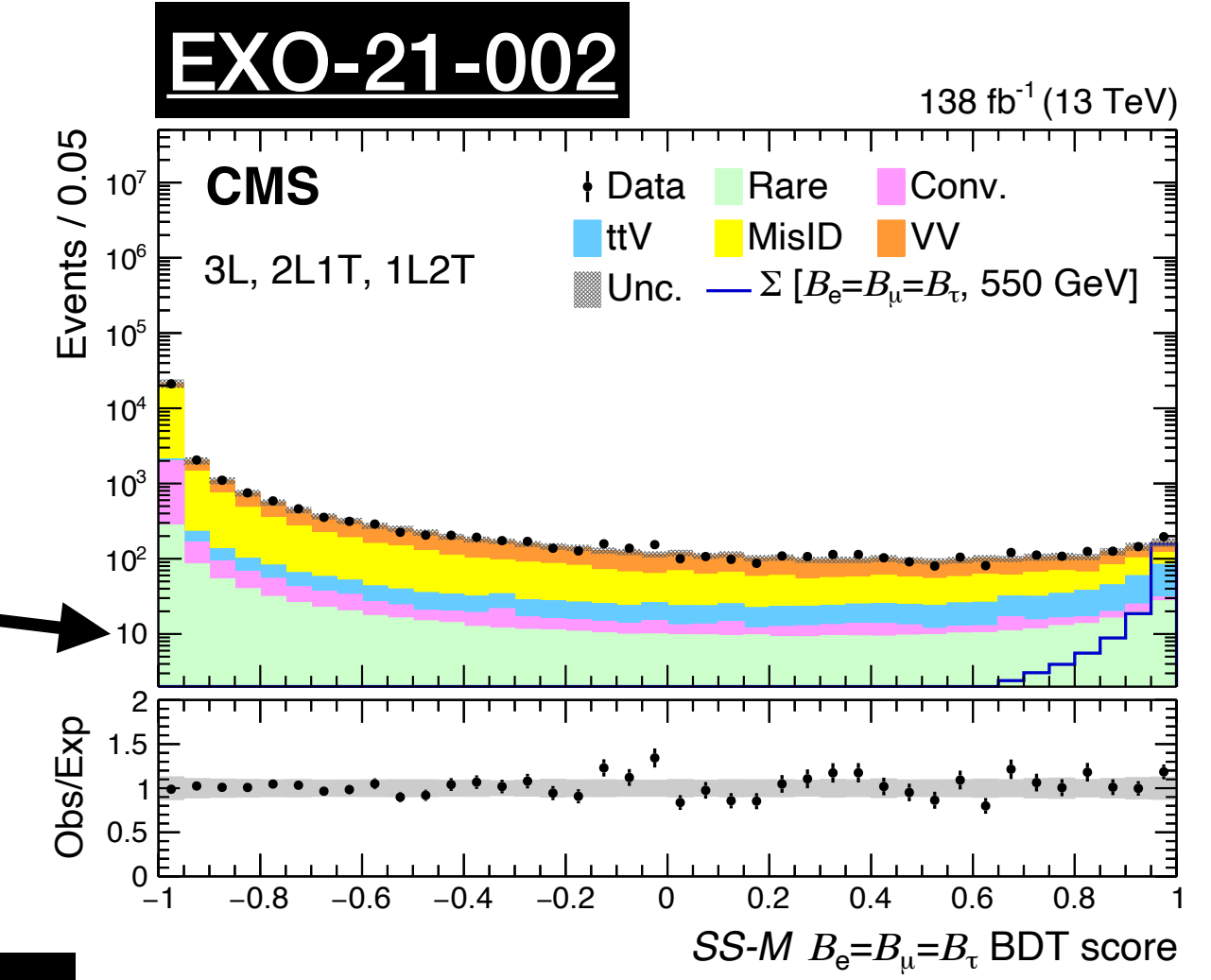
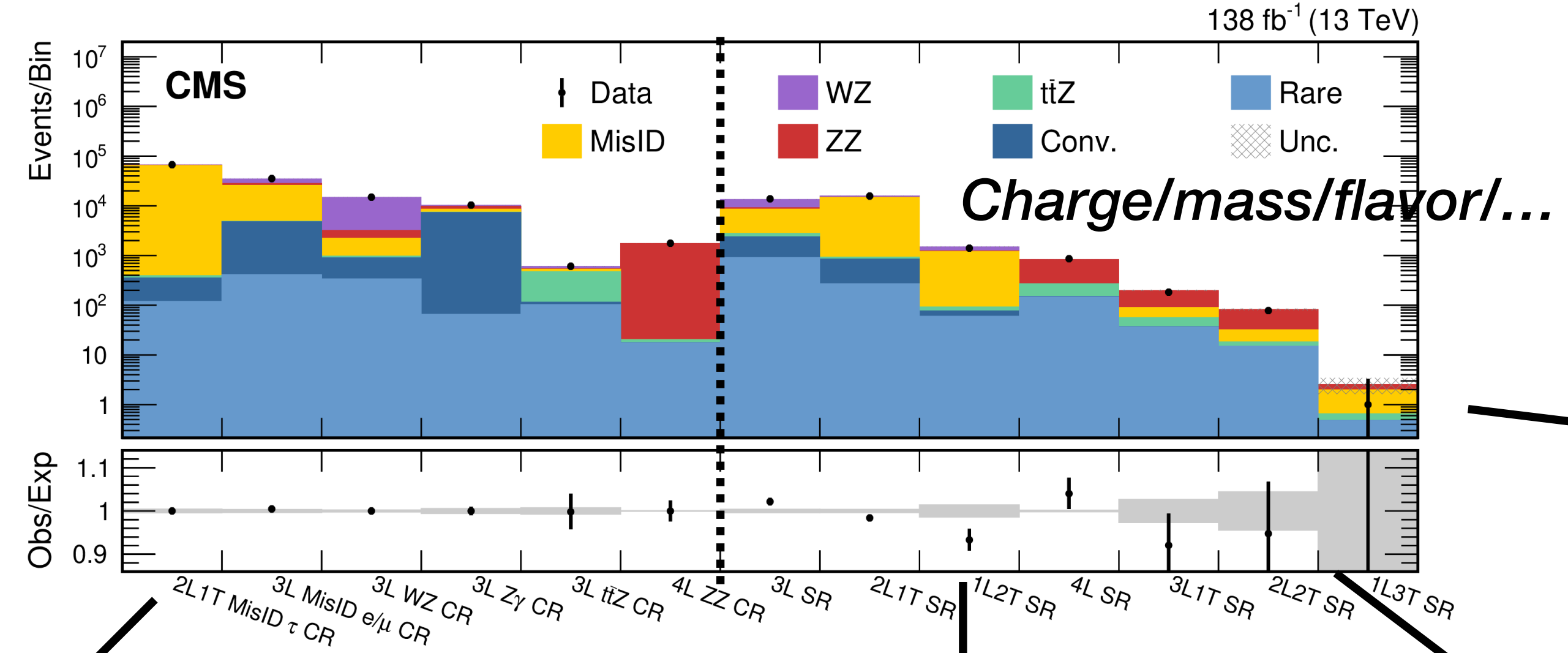
Close **collaborations with multiple CMS institutions:**

*Rutgers University (USA), Brown University (USA),  
University of Florida (USA), Helsinki Institute of Physics (Finland),  
Institute of High Energy Physics (China), CERN, ...*





# New physics at the EWK scale?



MVA

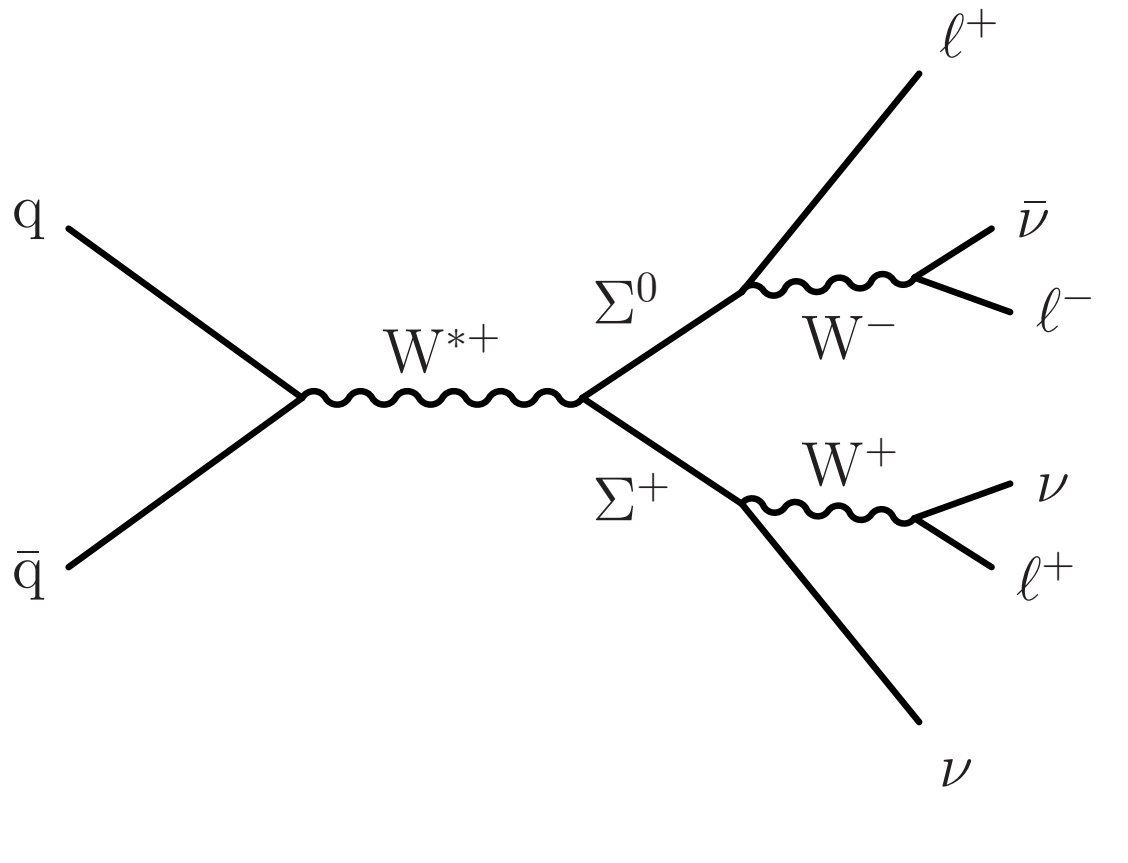
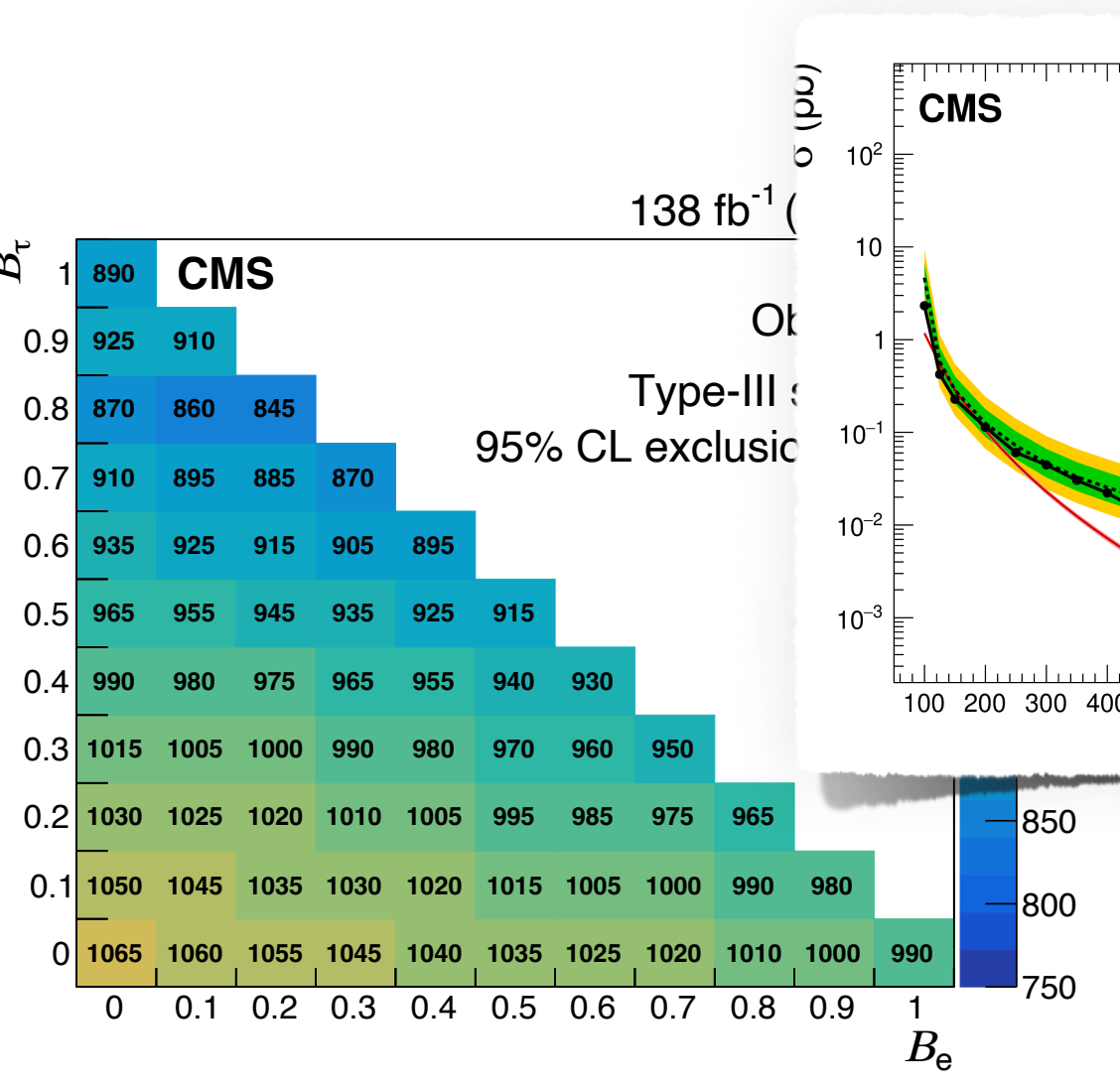
In resonances

At high  $p_T$

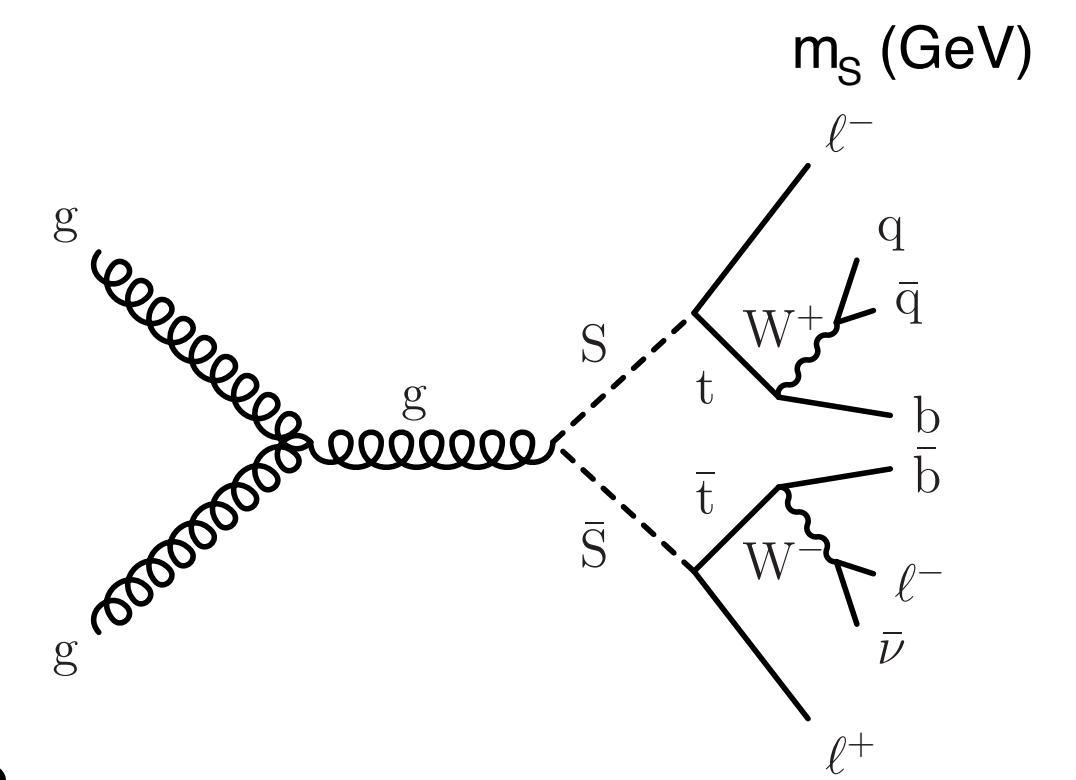
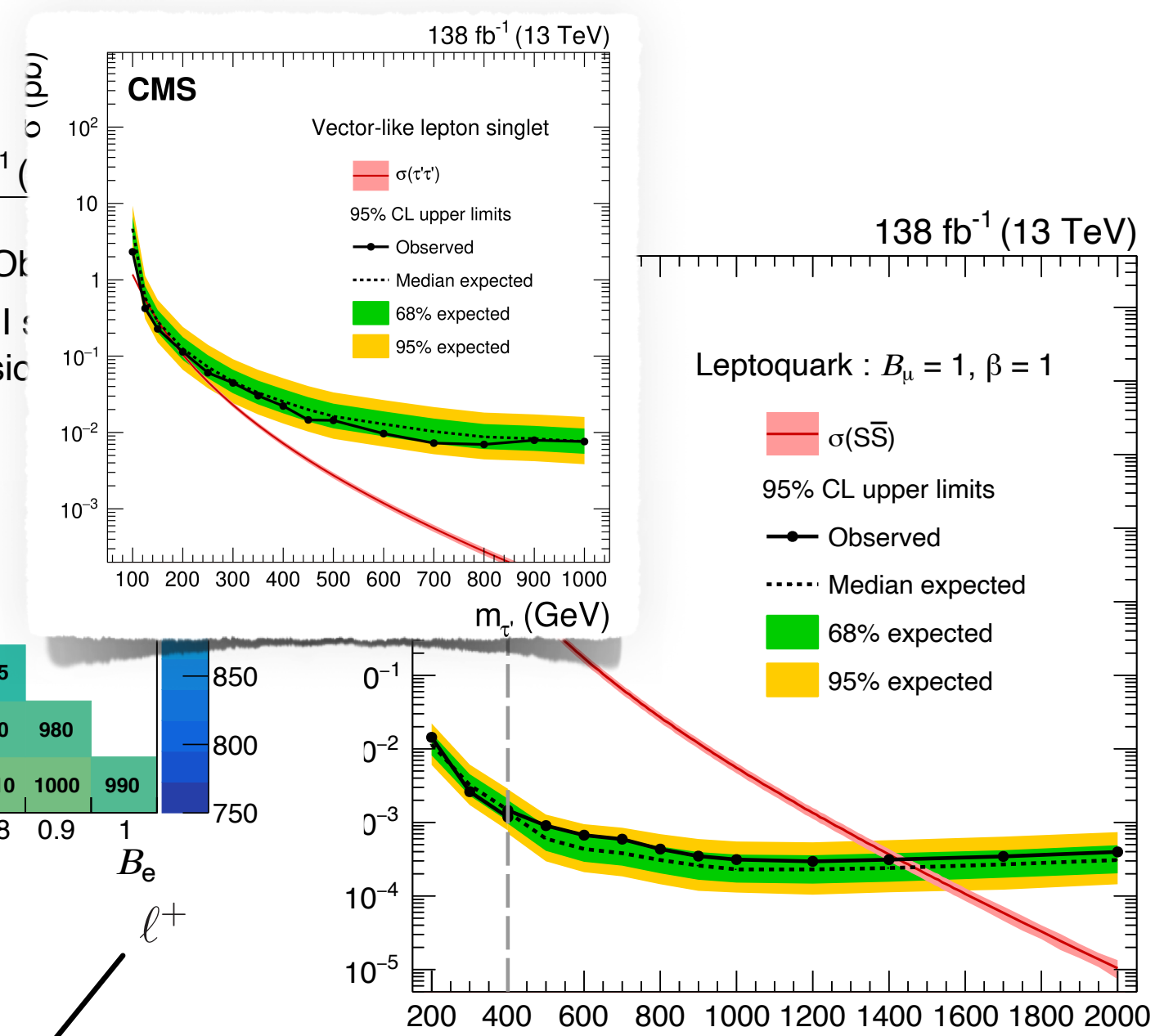
In jet distributions



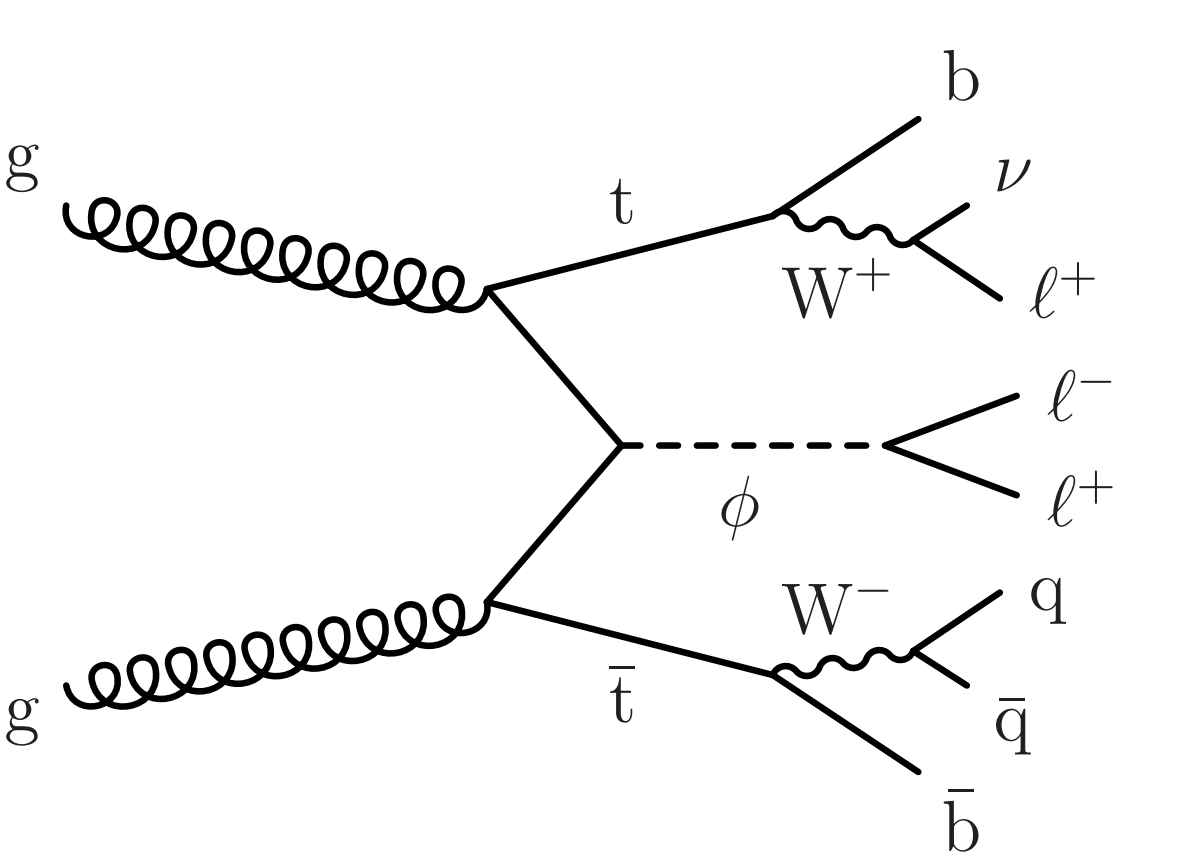
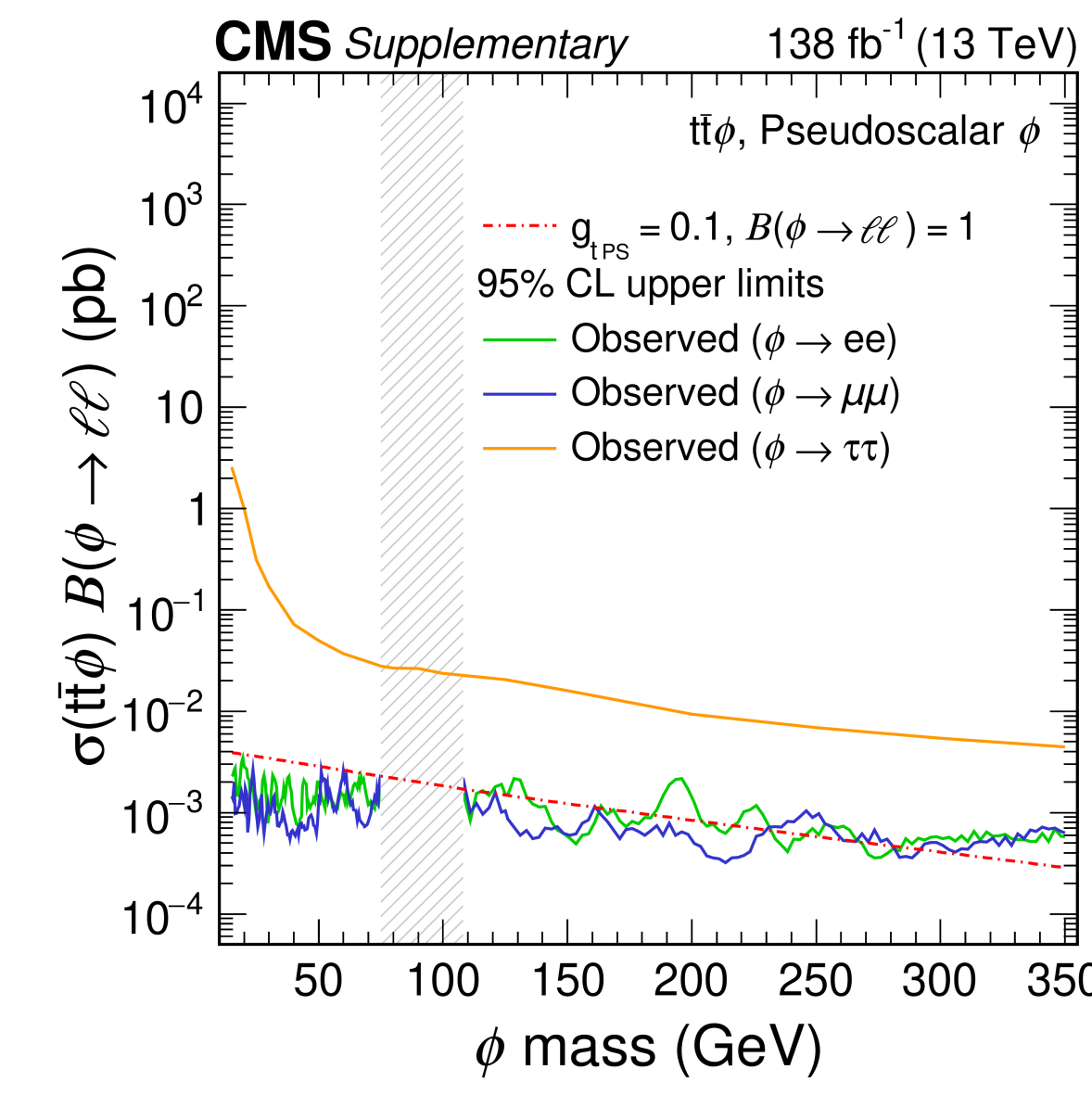
# New physics at the EWK scale?



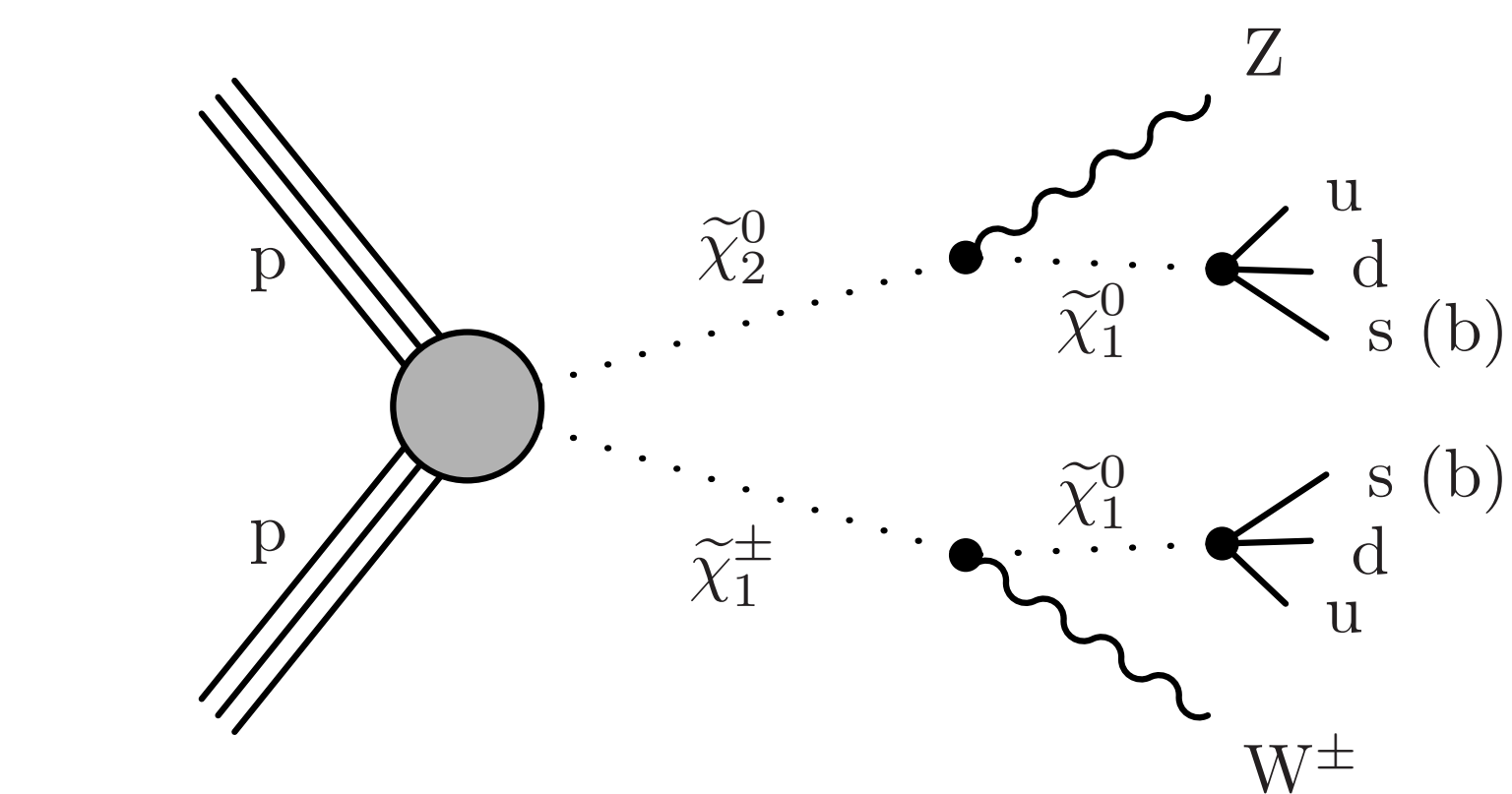
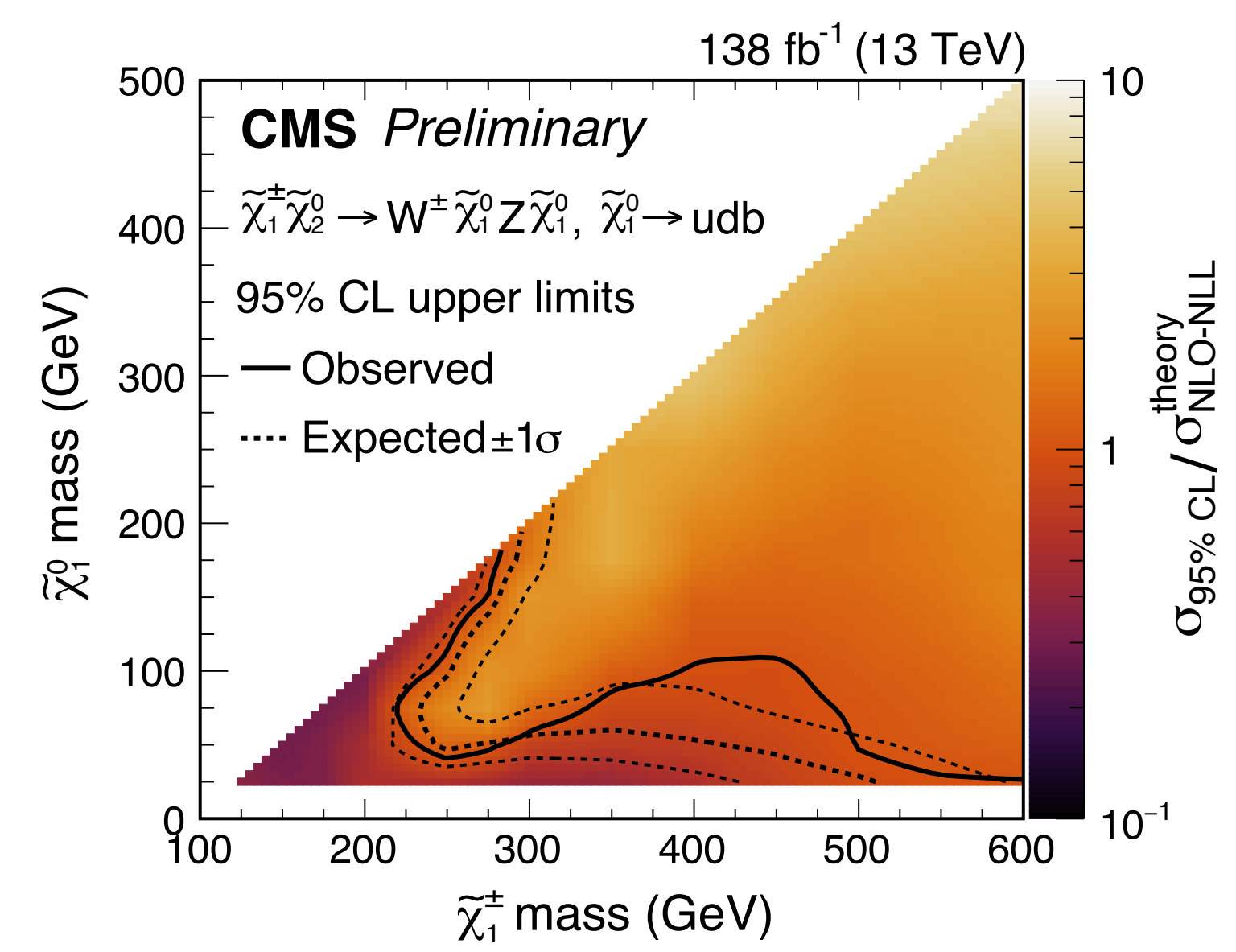
Heavy fermion models  
(Type-III Seesaw, VLL)



Leptoquarks



New dilepton resonances



hRPV SUSY



# Scope and timeline

Run-3 dataset and Cyprus awaits you!

- *A very rich experimental and BSM theory landscape with **leptonic** signatures*
- *Even the well-established methods require rethinking to face the high-lumi era.*
- *We have projects for a variety of skill sets and interests!*

The boilerplate:

A **PhD in particle physics** is required by the appointment start date.

*Position(s) will open by ~**March 2025, 2 year initial duration**  
**(stay tuned on inspirehep.net!, application through the **UCY web portal**)***

*Location: Primarily **Cyprus**, with frequent travel to **CERN***

*Candidates are expected to **lead group's analysis efforts with Run-3 data.***

*Detector/operations involvement is encouraged (e.g. HCAL, Lumi,..) but not required.*

*For all inquiries, please contact [halil.saka@cern.ch](mailto:halil.saka@cern.ch)*