

# Ongoing analyses and work within the POGs (1)

## Flavor Physics: searches for rare or forbidden decays, spectroscopy

- Search for the LFV decay  $\tau \rightarrow 3\mu$ 
  - Partial Run 3 **BPH-24-010** – presented at Moriond 26
  - Full-Run 3 starting [PhD thesis F.Nenna, 2° y]
- Search for  $B_s^0 \rightarrow 4\mu$  decays
  - Run 3 analysis **BPH-24-007** – presented at Moriond 26 [PhD thesis M. Buonsante, 3° y]
- First observation of  $\eta' \rightarrow 4\mu$  decays
  - Run 3 analysis ongoing [PhD thesis M. Buonsante, 3° y]
- Studies of the  $Y(1S)\phi$  state
  - Full-Run 2 approved **BPH-25-009** – target LHCP26
  - Run 3 analysis ongoing
- Spectroscopy in the bc system
  - Run 2 + Run 3 analysis ongoing [PhD thesis U. Sozbilir, 2024]

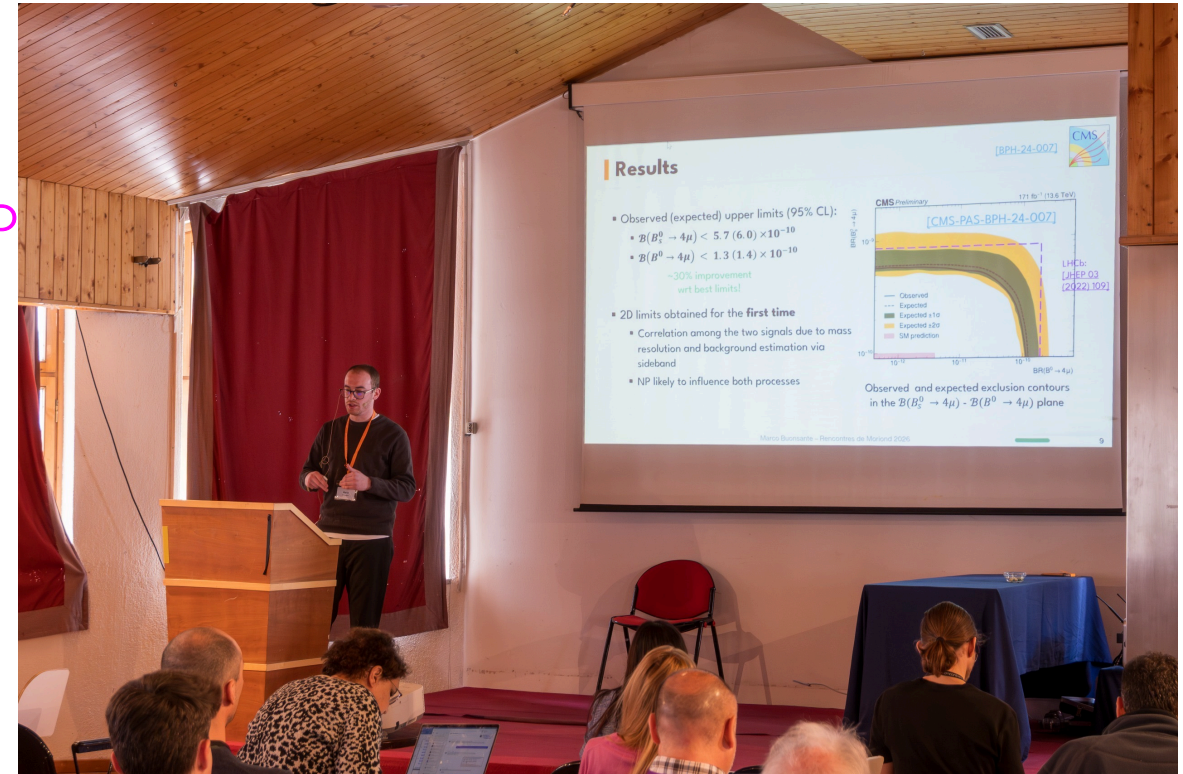
## Reconstruction:

- MUO POG: Muon reconstruction [L3 F. Simone] and identification [L3 R. Radogna]
  - Run 3 paper performance in preparation **MUO-25-002** - target LHCP26
- MUO POG / GEM DPG: Development of muon reconstruction algorithms for Phase 2 [PhD thesis F.Nenna, ongoing]

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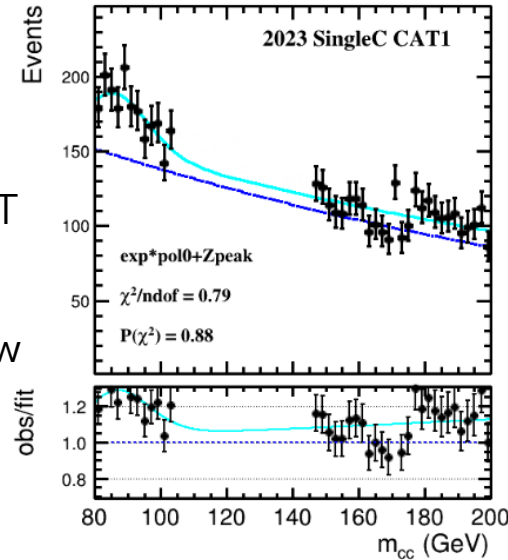
# Ongoing analyses and work within the POGs (2)

## Higgs Physics:

Search for VBF  $H \rightarrow c\bar{c}$  decays

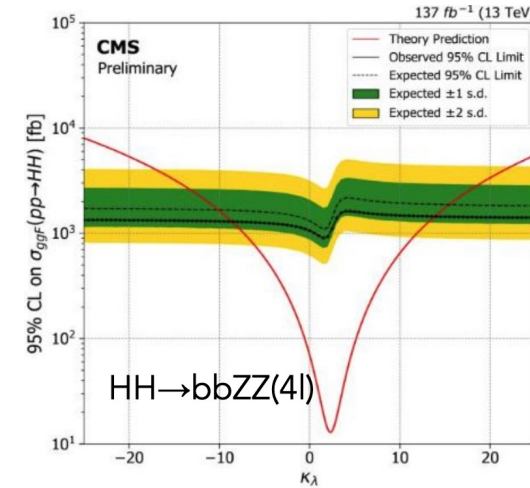
A. Zaza, L. Generoso (PhD thesis 2° y),  
A. Pellecchia

- 2023 data analysis with dedicated HLT close to pre-approval **HIG-25-017**
- 2024-2025 data analysis using the new «VBF-parking» paths and ParT for jet tagging is ongoing



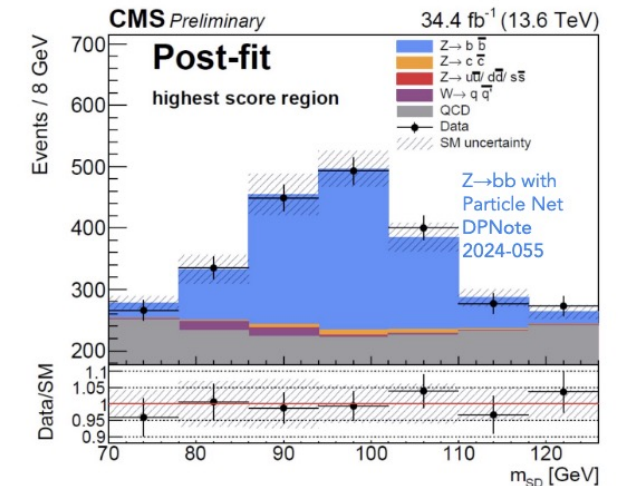
Search for HH

- HH $\rightarrow$ bbZZ(4l) resonant pre-approved **B2G-25-002** [PhD thesis M. Louka, 2025]
- HH x-section modelling via NN [work of M. Barbieri, now N. De Filippis]



## Tagging of heavy flavor jets and trigger:

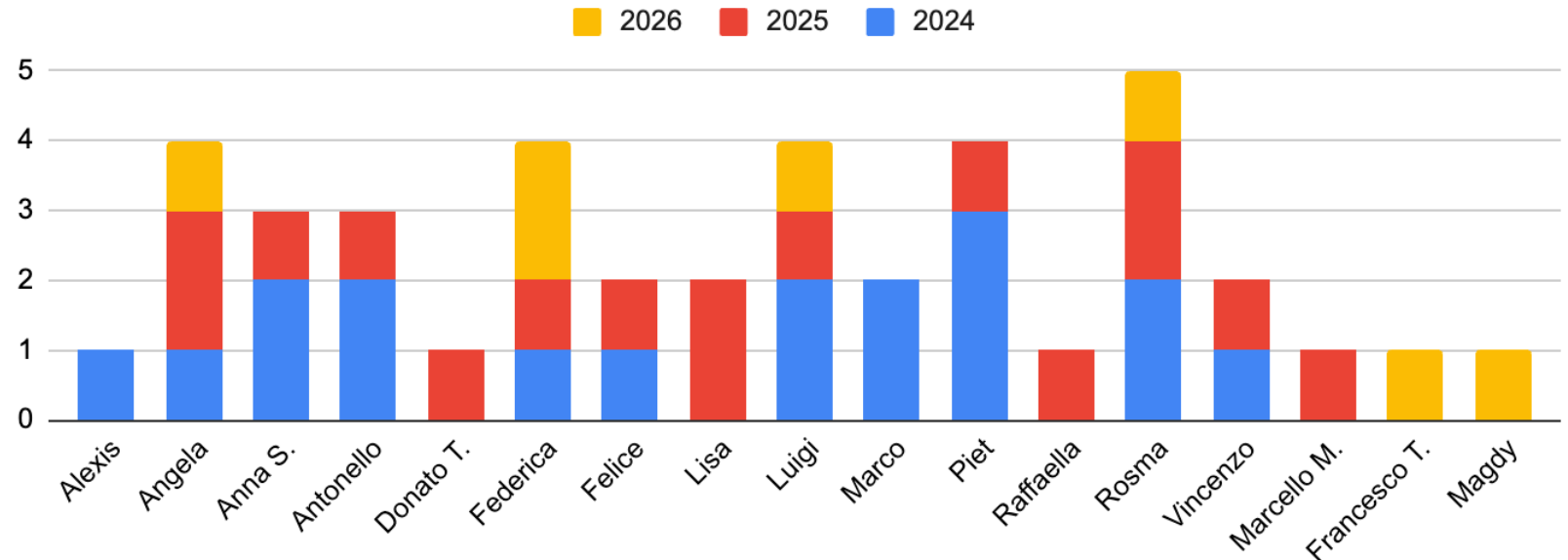
- BTV POG: Development of b/c jet tagging algo [PhD thesis D. Troiano, defence in 2026]
- BTV POG: Calibration of the tagging algorithms for offline analyses [L. Generoso, D. Troiano]
  - **CMS-DP-2024-055**
- HIG-trigger: Dev. and performance of triggers for Higgs analyses [A. Zaza, contact] «Jet flavour tagging at HLT and commissioning with Run 3 data» **BTV-25-002** approved (A. Zaza was the speaker), on track for LHCP26



# Collaboration Wide Reviews



- **New ways for contributing:**
  - "Standard" CWR: read the paper draft and send comments
  - Institutional Review: attend the approval talk, ask questions at the meeting and/or offline (gdoc)
- **We typically share the effort:** one senior + one student
  - 2024: 9 reviews done, 18 people
  - 2025: 9 reviews done, 1 declined, 17 people
  - 2026: 4 reviews done, 6 people
  - only ~50% of the CMS Bari group contributes



# ARC Reviews



Please fill the gdoc [\*] with the CADI line if you start serving as ARC member or chair

CADI	ARC member	ARC chair	Status	Inserite nel DB infn
HIG-21-004	Nicola	N		
SMP-24-009	Nicola	N		
<b>BPH-22-002</b>	<b>Alexis</b>	<b>Y</b>	<b>PUB</b>	<b>2025</b>
BPH-22-007	Alexis	Y	CWR ended	
HIN-22-001	Alexis	N	CWR ended	
HIN-22-003	Alexis	N	review ongoing	
<b>BPH-22-001</b>	<b>Federica</b>	<b>N</b>	<a href="http://dx.doi.org/10.100">http://dx.doi.org/10.100</a>	<b>2025</b>
BPH-24-003	Federica	N		
B2G-23-003	Rosma	N		
SUS-24-015	Piet	N		
	Raffaella	N		
	Marcello	N		
	Luigi	N		
SMP-25-006	Francesco T.	N	ongoing CWR	

[\*] <https://docs.google.com/spreadsheets/d/1L0ib1D8qLfwkSRWVujLKro9tBiKPuN-v0Pgn5imtZog/edit?usp=sharing>