



JRA1-WP19 = LHC-Combine, aka HONEXCOMB



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## Plan :

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1. Work performed from the beginning of the project to the end of the period covered by the report and main results achieved so far
2. List of the Deliverables and Milestones achieved
3. Progress beyond the state of the art, expected results until the end of the project and potential impact

# 0 – The idea

“ Inter-experiment combination of heavy-ion measurements at the LHC ”

- Animation of a vivid forum
- Cross-experiment combination work (papers)

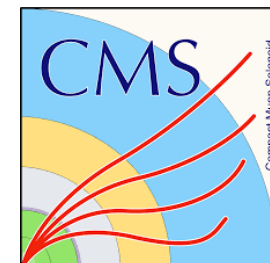
+ other actions

- Comparing methods or observables (Centrality...)
- Producing or endorsing comparison plots
- Identifying (and solving) tensions\*

\*  $Y(nS)$  ATLAS vs CMS;  $Z$  ATLAS vs CMS;  $\Lambda_c/D0$  LHCb vs ALICE;  $R_{AA}$  at high  $p_T$  ALICE vs CMS...



ALICE



# 1 – Work (kick off)

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Identify 4 spokespersons / contacts + hosts for 4x1 year of postdoc

- Alexander Kalweit (CERN) in Alice + Jacek Otwinowski (INP, Krakow, Poland);
- Iwona Grabowska-Bold (**AGH UST, Krakow, Poland**) in Atlas (**new beneficiary**);
- Giulia Manca (INFN Cagliari, Italy) in LHCb;
- Raphaël Granier de Cassagnac (Polytechnique, France) in CMS.

Set up communication tools

- Wiki : <https://twiki.cern.ch/twiki/bin/view/Honexcomb>
- Mailing list (100+ people) [honex-comb@cern.ch](mailto:honex-comb@cern.ch) created ([feel free to subscribe](#))
- Meetings : kick-off in January, 7 meetings as of today (5 remote which does not help)



# 1 – Work (list of topics)

Discussed in meetings (talks)

- Heavy Flavours\* (4)

- nPDF (3)

- Quarkonia

- Light-by-light scattering

From proposal

+ Centrality definition

+ Top quarks

+ Jets\* (2)

+ Anomalous em moment of tau

\* Connections with NA3 and NA7

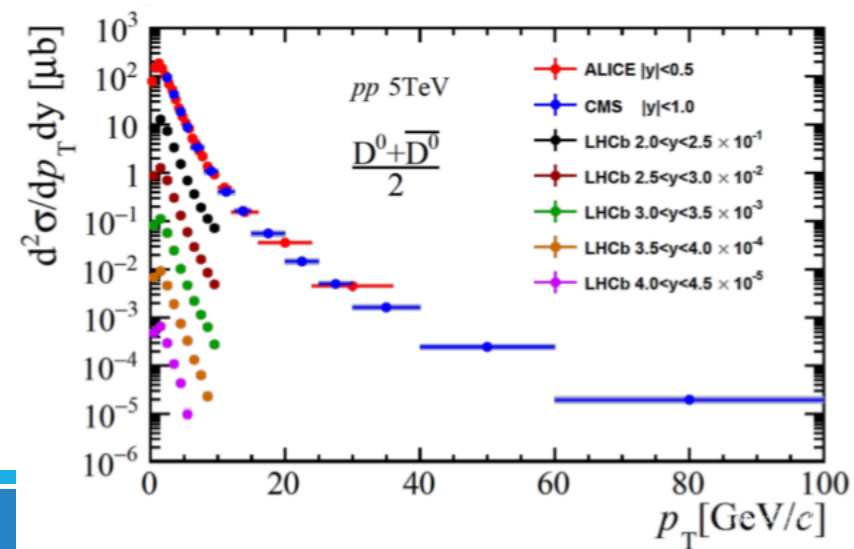
Work done in each collaboration

+ One identified common work

Small team to work out a first combination

(ALICE+CMS+LHCb)

Open charm cross section (total + differential)



## 2 – Deliverables and Milestones

D19.1 = Vivid Forum / January 2020 / <https://twiki.cern.ch/twiki/bin/view/Honexcomb>

MS32 = Kick-off / January 2020 / <https://indico.cern.ch/event/872670/>

D19.2 = Road Map / April 2020 / <https://twiki.cern.ch/twiki/pub/Honexcomb/WebHome/Roadmap.pdf>

Work package number	19															
Work package acronym	LHC-Combine															
Work package title	JRA1-Inter-experiment combination of heavy-ion measurements at the LHC															
<b>TASKS/Subtasks</b>	<b>Year 1</b>				<b>Year 2</b>				<b>Year 3</b>				<b>Year 4</b>			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
<b>1. Animation of a forum</b>		1														
<b>2. Cross-experiment combination work</b>				2												

## 3 – Progress

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Beyond the state of the art? A 4-experiment forum exists...

Expected results? Not much yet, but x-collaboration paper is the goal and one topic is identified

Potential impact? Wait and see, but having a forum is already something (but people are busy)

In this work, **no strong-2020 euro was spent** yet!

- Delay in hiring the postdocs (unexpected amendment needed)
- First one arriving in January 2021 (Florian Damas, from Alice to CMS)
- Expected boost with their arrival, stay tuned...

Strong-2020 **extension is very welcome**

- Ideally by one year to allow flexibility in hiring (3-year postdocs, with 1 to 2 years from Strong 2020)