

Run 3 = Run LLP?

A frank trigger discussion.

2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	203+
		Run III						Run IV					Run V	
LS2						LS3					LS4			
LHCb 40 MHz UPGRADE Phase I		$L = 2 \times 10^{33}$			LHCb Consolidation			$L = 2 \times 10^{33}$ 50 fb^{-1}			LHCb Ph II UPGRADE *		$L = 2 \times 10^{34}$ 300 fb^{-1}	
ATLAS Phase I Upgr		$L = 2 \times 10^{34}$			ATLAS Phase II UPGRADE			HL-LHC $L = 5 \times 10^{34}$			ATLAS		HL-LHC $L = 5 \times 10^{34}$	
CMS Phase I Upgr		300 fb^{-1}			CMS Phase II UPGRADE						CMS		3000 fb^{-1}	
Belle II		5 ab^{-1}	$L = 8 \times 10^{35}$		50 ab^{-1}									

- Challenging experimental conditions – improve **detector performance and reach**:
 - Higher pile-up and occupancy → higher detector granularity.
 - Higher rate → improve discriminating power and trigger capabilities.
 - Higher fluence and radiation damage → higher radiation hardness.
- In particular – **trigger** and **tracking systems** are crucial for LLP searches.

How to get most out of Run 3?

- Get the data on tape: **trigger!**
- Collect it efficiently: **tools!**
- Get the stuff we want: **propose to machine plans?**

- 2 years to prepare, which means we need this yesterday...
 - Broad discussions in experiments on-going.
- How to weigh in from LLP?
 - Write-up/short paper with ideas from this community?
 - Detailed studies necessarily in experiments...
 - **But** - this is not meant to be an experimentalists-only work: **joint TH-EXP efforts!**