

INTERNATIONAL MASTERCLASSES HANDS ON PARTICLE PHYSICS



Institut "Jožef Stefan"



Univerza v Ljubljani
Fakulteta za *matematiko in fiziko*
Oddelek za fiziko





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**INTERNATIONAL
MASTERCLASSES**
**HANDS
ON PARTICLE
PHYSICS**



Belle II International Masterclass

16.3.2022 od 9h do 16h
Institut „Jožef Stefan“

Izr. prof. dr. Rok Pestotnik

Institut "Jožef Stefan", Ljubljana

Odsek za eksperimentalno fiziko osnovnih delcev

<https://physicsmasterclasses.org/>

IMC 2022

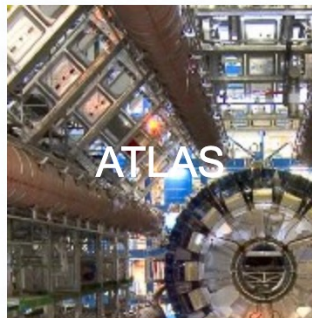
Več vzporednih dogodkov v marcu 2022

Postani raziskovalec za en dan



International Masterclasses

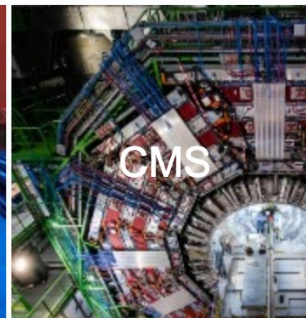
18th International Masterclasses 2022



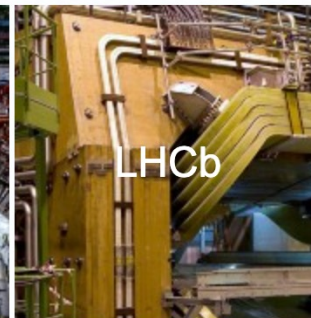
ATLAS



ALICE



CMS



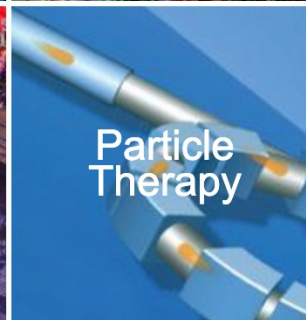
LHCb



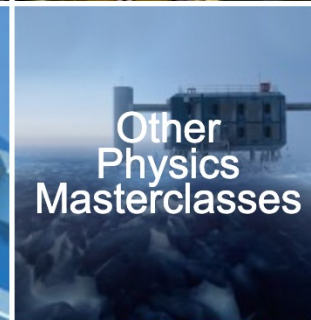
BELLE II



MINERvA



Particle
Therapy



Other
Physics
Masterclasses

Organizatorji slovenskega dogodka

- izr. prof. Rok Pestotnik
- doc. dr. Tomaž Podobnik
- prof. dr. Samo Korpar
- asist. dr. Luka Šantelj
- doc. dr. Marko Bračko
- asist. Andrej Lozej
- Luka Senekovič
- Anja Novosel

Odsek za eksperimentalno
fiziko osnovnih delcev

Program

<https://indico.ijs.si/event/1412/>

8:45 - 9:00	Pozdravni nagovor	Izr. prof. dr. Rok Pestotnik, IJS
9:00 - 9:45	Fizika osnovnih delcev	doc. dr. Tomaž Podobnik, UNI LJ + IJS
9:45 - 10:30	Eksperimentalne metode v fiziki osnovnih delcev	prof. dr. Samo Korpar, UNI MB + IJS
11:30 - 11:00	Virtualni sprehod po spektrometru Belle II	asist. dr. Luka Šantelj, UNI LJ + IJS
11:00 - 11:30	Analiza podatkov	doc. dr. Marko Bračko, UNI MB + IJS
11:30 - 12:30	Kosilo	pogovor z raziskovalci
12:30 - 15:00	Delavnica– analiza podatkov, zajetih z detektorjem Belle II	asist. Andrej Lozar, Anja Novosel , Luka Senekovič, IJS
15:00 - 16:00	Video konferenca – Krakow, Praga , Munchen, Ankara + Belle II kontrolna soba	izr. Prof. dr. Rok Pestotnik, IJS

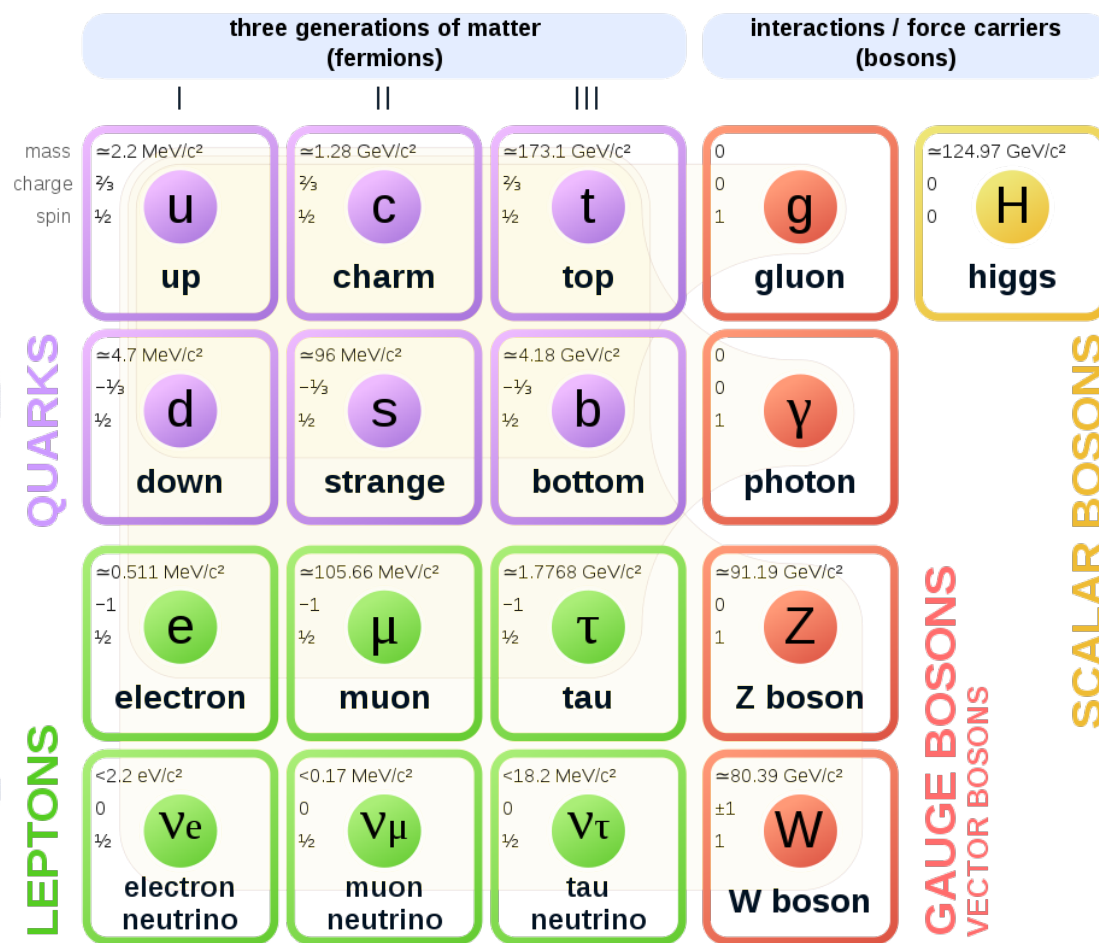
Sprašujte

- Čim več sprašujte
- Le tako boste z delavnice odnesli največ.

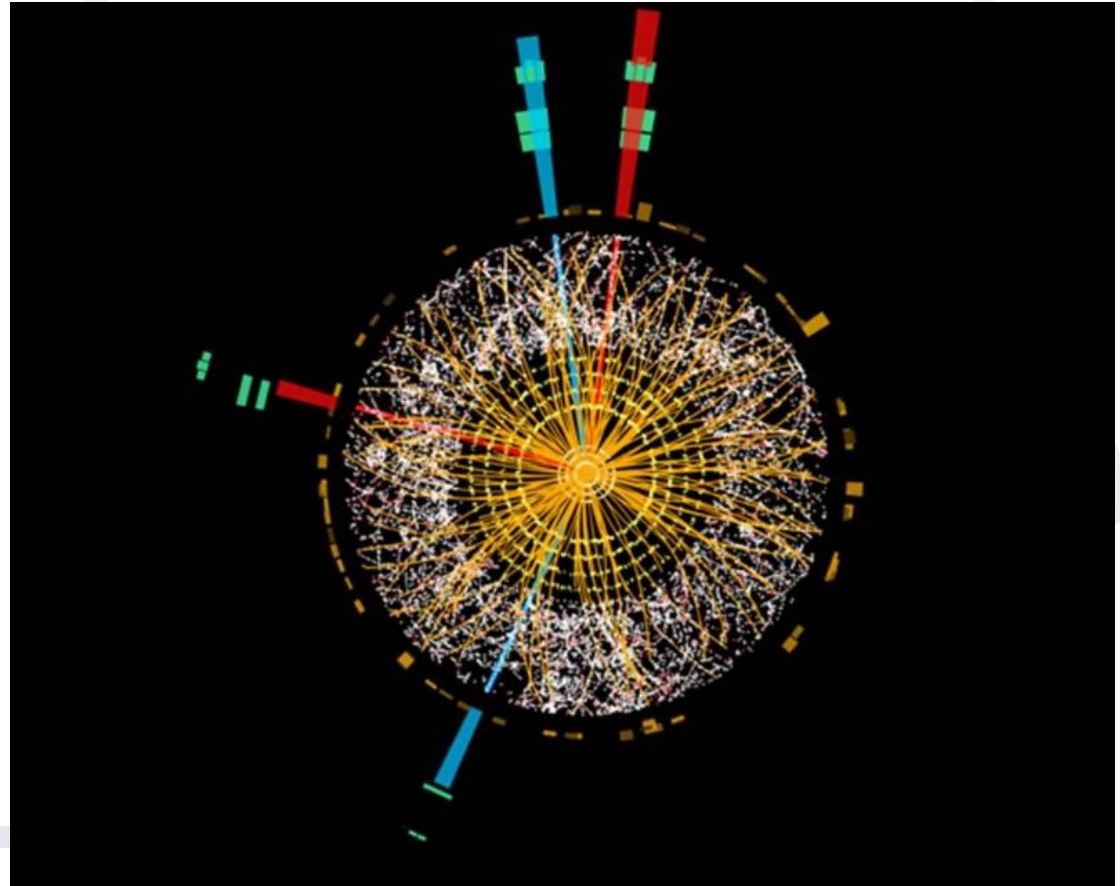
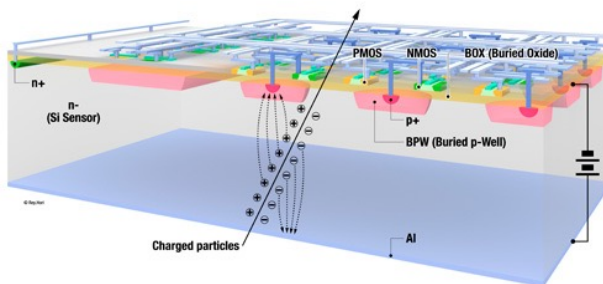
Fizika osnovnih delcev

Standard Model of Elementary Particles

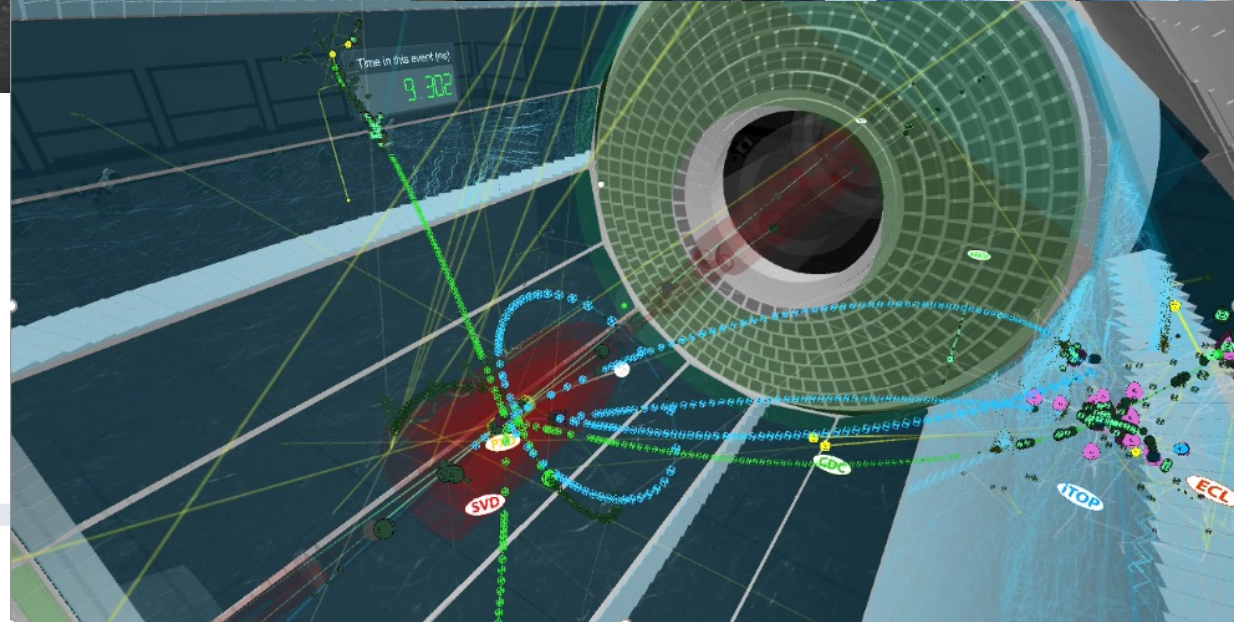
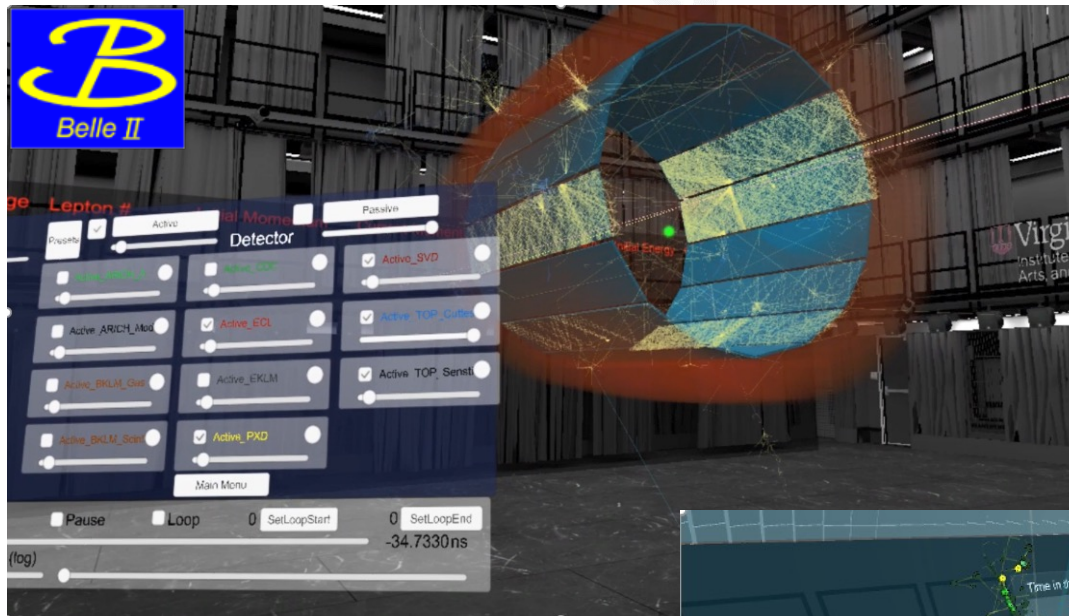
Tomaž
Podobnik



Eksperimentalne metode v fiziki osnovnih delcev

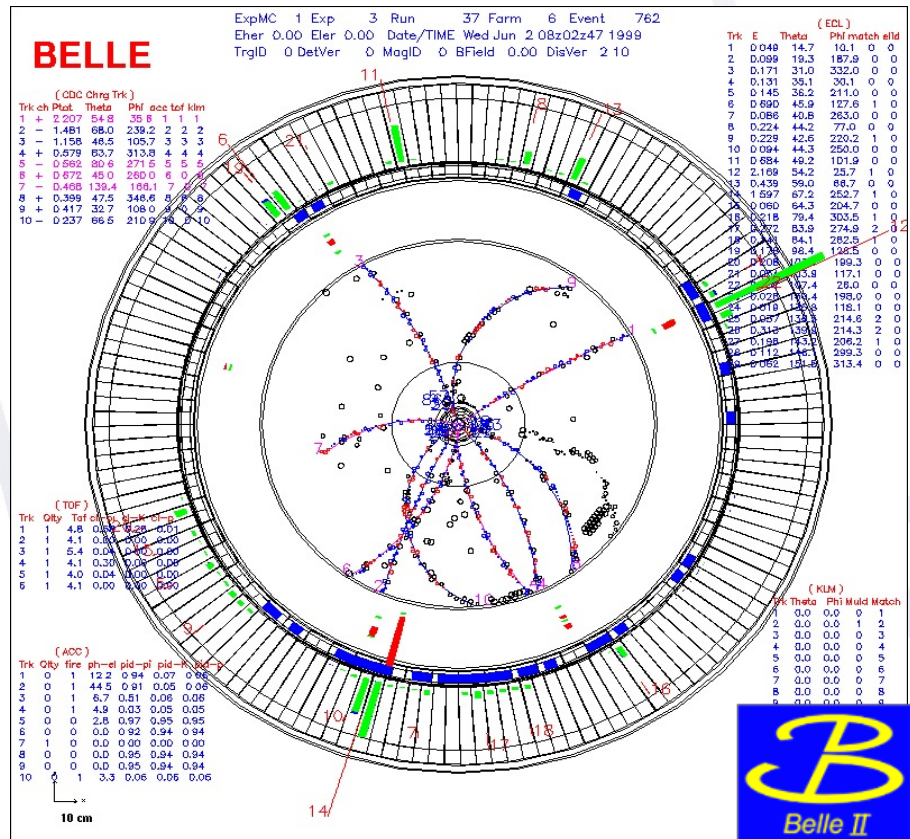
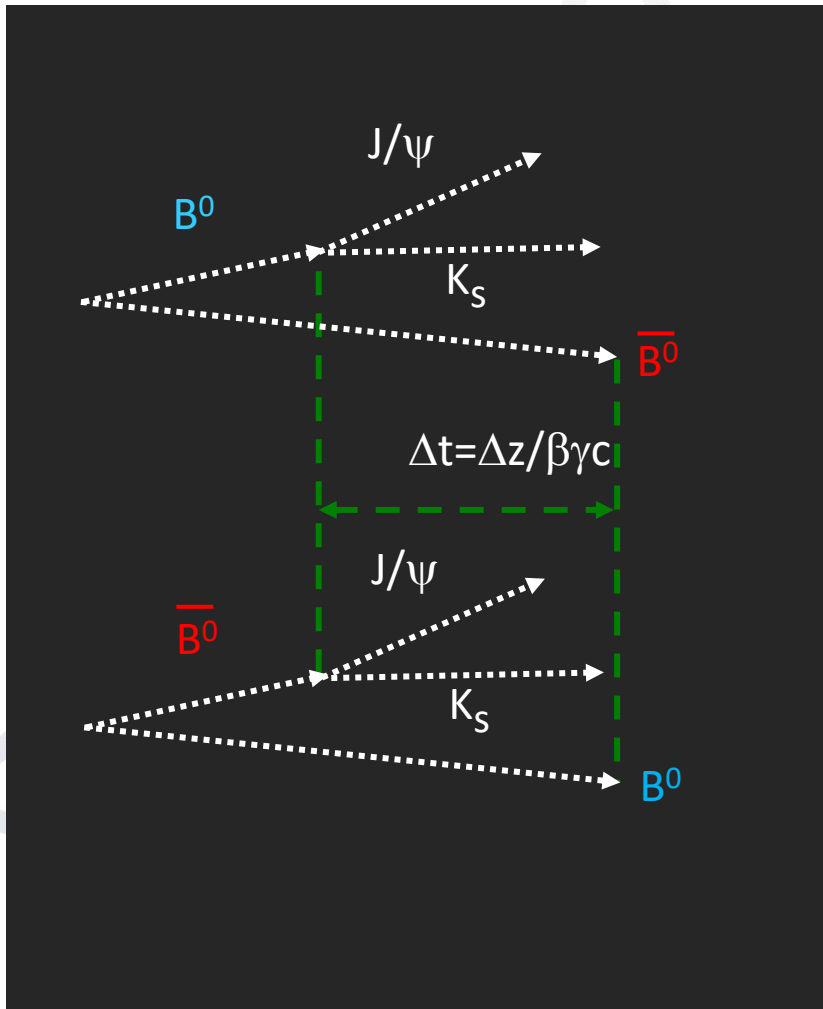


Virtualni sprehod po detektorju Belle II



Analiza podatkov

Marko Bračko



Delavnica – iskanje novih delcev

Run Analysis Interrupt Save Diagram Load Diagram

Particles
Analysis
Variables

Belle II Masterclass

Number of events: 50000

First event: 0

Data Source hadron-2

Print particle list? No

Particle List

Combine 2 particles

1. Particle

Select Particles

Particles

Charge 0

Type photon

Histogram

2. Particle

Select Particles

Particles

Charge 0

Type photon

Histogram

Same particle lists? No

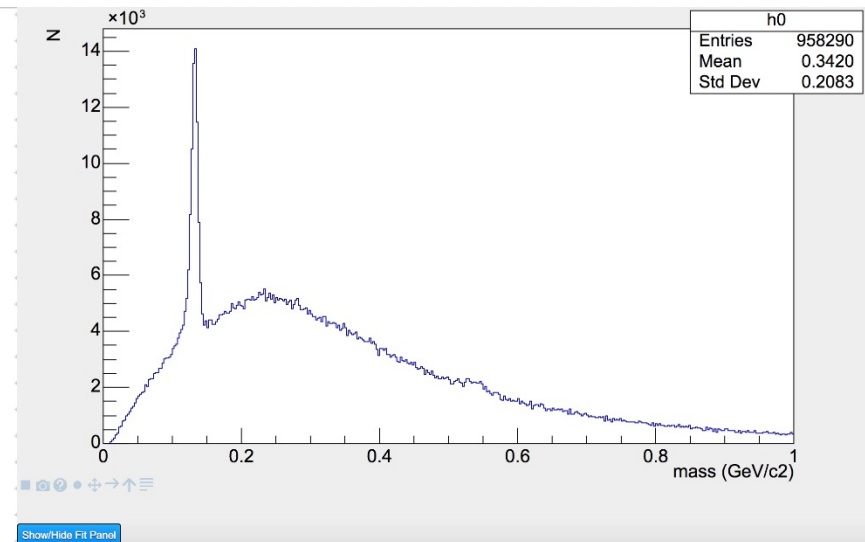
Set identity to pion

Min mass [GeV/c²] : 0.001

Max mass [GeV/c²] : 1

Histogram

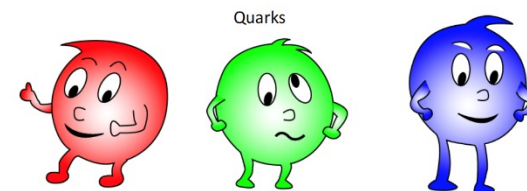
Histogram Title pipi Mass;GeV/c;N Number of bins 400 Min: 0 Max: 1 Variable mass



Video konferenca

- Povezava z dijaki iz Krakowa, Prage, Munchna in Slovenije
- Predstavitev rezultatov
- Kviz – malo za hec
- Povezava s kontrolno sobo eksperimenta Belle II

Rok Pestotnik



Quiz answers sheet

1	A. ☐	B. ☐	Your score In Luminosity
	C. ☐	D. ☐	
2	A. ☐	B. ☐	☐ 8 $10^{35} \text{ cm}^{-2} \text{ s}^{-1}$ Target luminosity of SuperKEKB
	C. ☐	D. ☐	☐ 7 $10^{35} \text{ cm}^{-2} \text{ s}^{-1}$ Very close to your goal
3	A. ☐	B. ☐	☐ 6 $10^{35} \text{ cm}^{-2} \text{ s}^{-1}$ Small beam currents increase
	C. ☐	D. ☐	☐ 5 $10^{35} \text{ cm}^{-2} \text{ s}^{-1}$ Few additional bunches
4	A. ☐	B. ☐	☐ 4 $10^{35} \text{ cm}^{-2} \text{ s}^{-1}$ Implement all together
	C. ☐	D. ☐	☐ 3 $10^{35} \text{ cm}^{-2} \text{ s}^{-1}$ Try to increase beam currents
5	A. ☐	B. ☐	☐ 2 $10^{35} \text{ cm}^{-2} \text{ s}^{-1}$ Try to increase number of bunches
	C. ☐	D. ☐	☐ 1 $10^{35} \text{ cm}^{-2} \text{ s}^{-1}$ Try to squeeze more your beam
6	A. ☐	B. ☐	
	C. ☐	D. ☐	
7	A. ☐	B. ☐	
	C. ☐	D. ☐	
8	A. ☐	B. ☐	
	C. ☐	D. ☐	

