

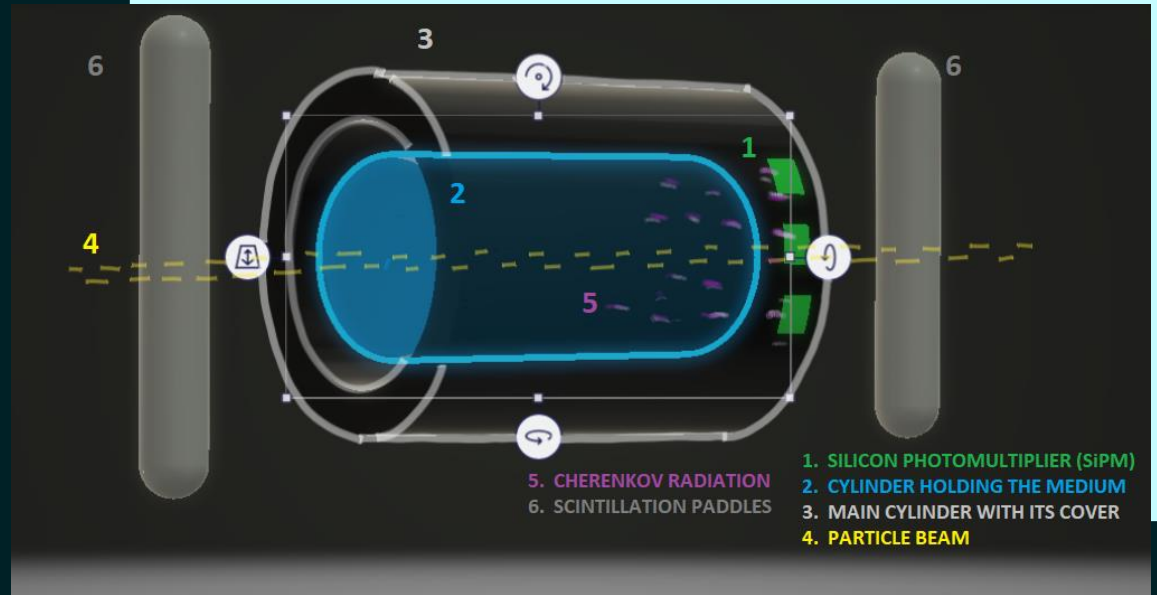
Teomiztli

Cherenkov Radiation
Detector

Proposal



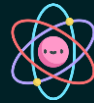
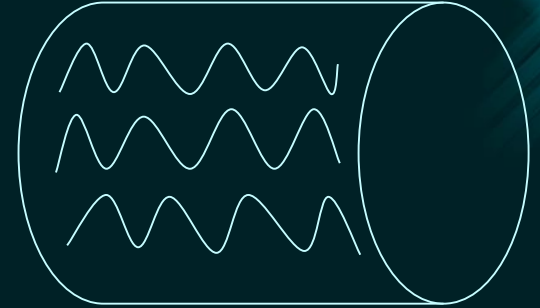
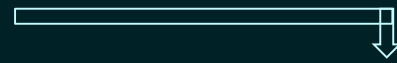
Build a cherenkov radiation detector with liquid medium instead of gas



Proposal Medium



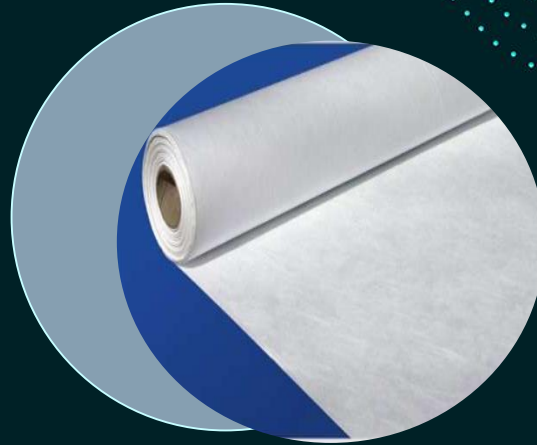
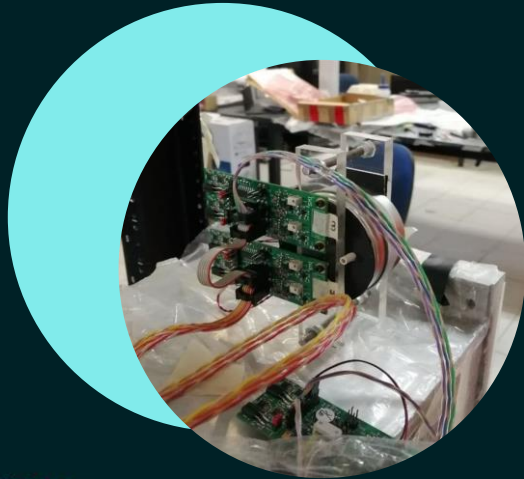
Glycerol



Water



First ideas

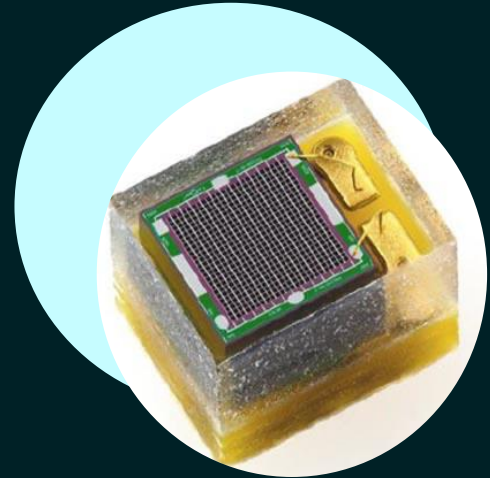


Functional



Efficiency

What we got

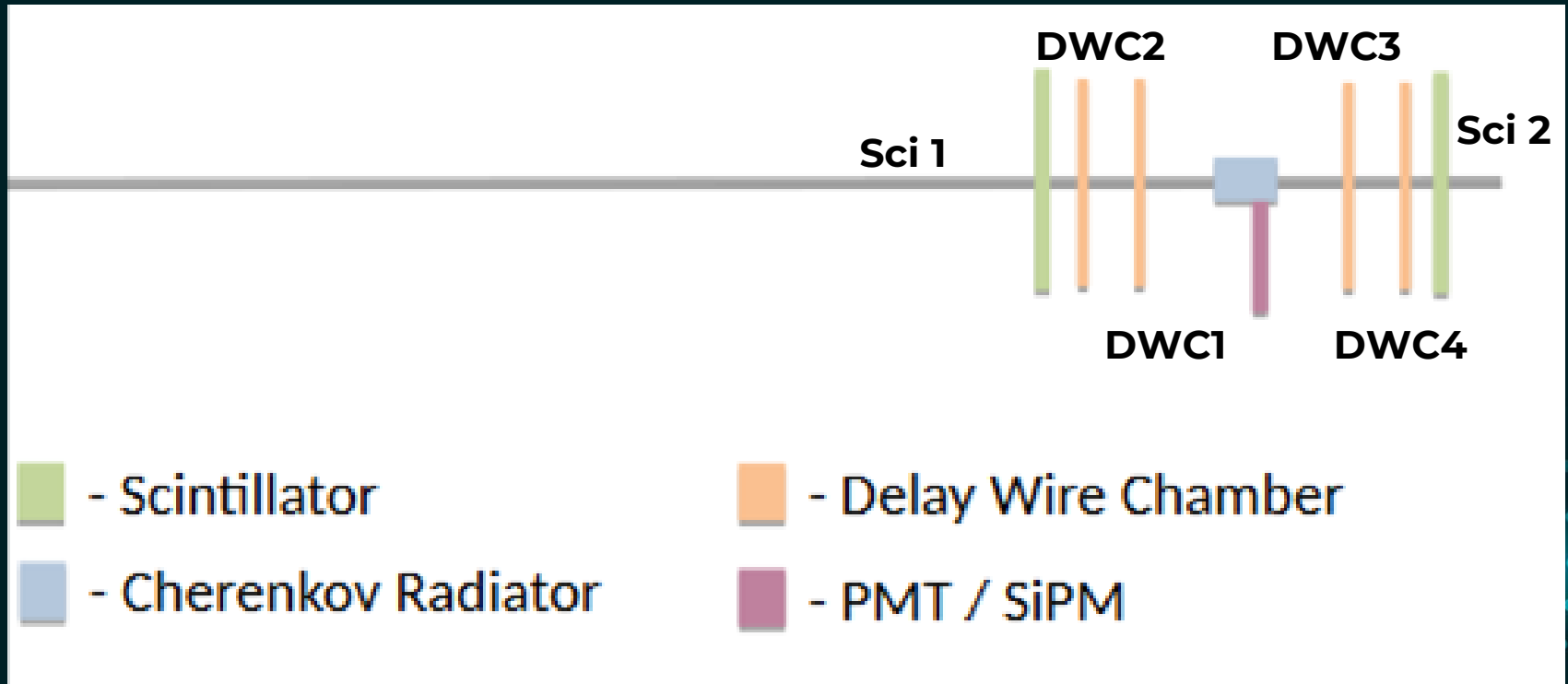


Efficiency



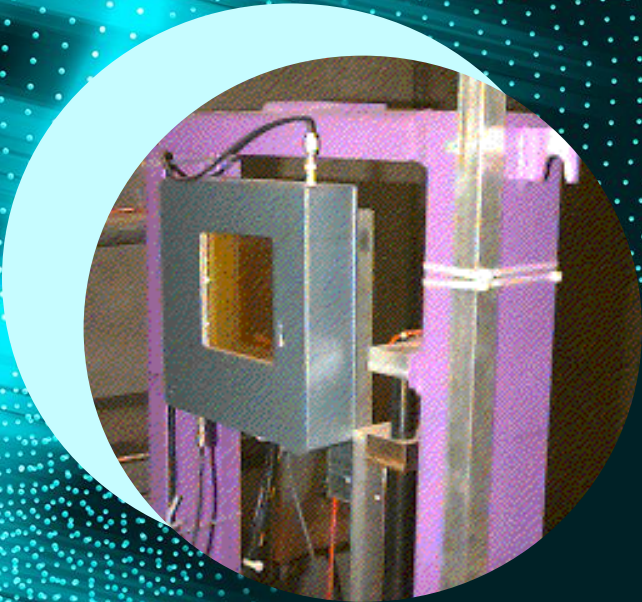
Efficiency

Experimental setup



Medium	Energy	M. Reflective	Particles	Type of PM.
Water	5-1GeV	Tyvek	e^-	PMT
Water	6-1GeV	Painted	e^-	PMT
Glycerol	6-1GeV	Painted	e^-	PMT
A. Quinine	5-1GeV	Painted	e^-	PMT
G. Quinine	5-1GeV	Painted	e^-	PMT
Water	5-1GeV	Painted	e^+	PMT
Glycerol	5-1GeV	Painted	e^+	PMT
Water	5-1GeV	Painted	e^-	SiPM

Delay Wire Chambers



Efficiency

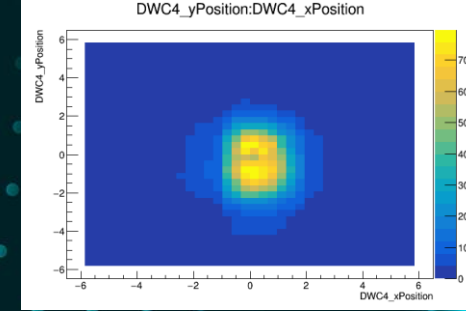
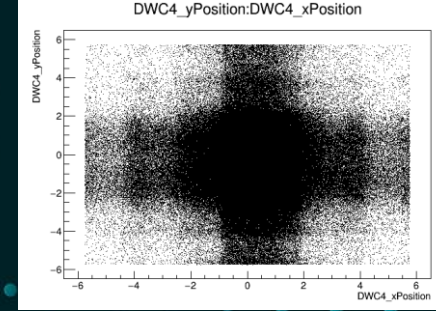
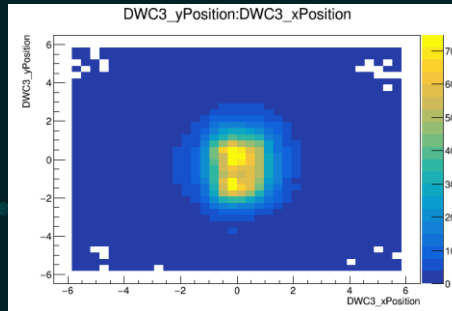
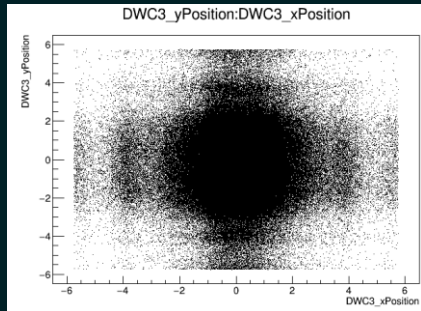
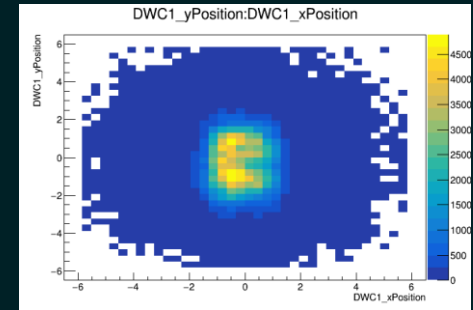
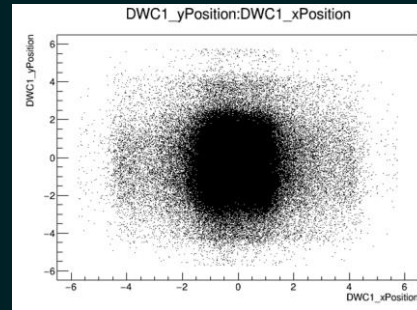
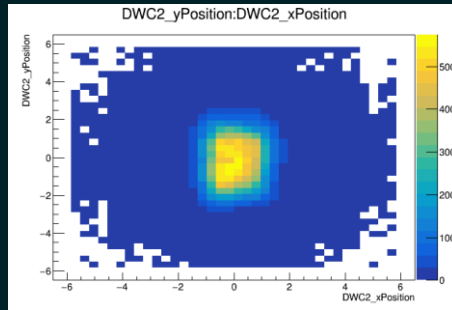
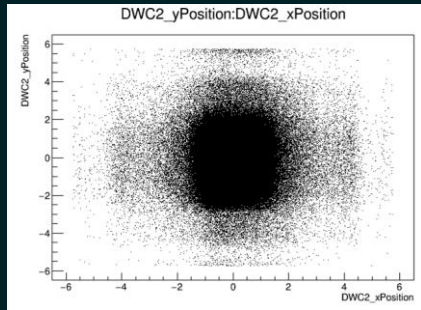


Calibrating



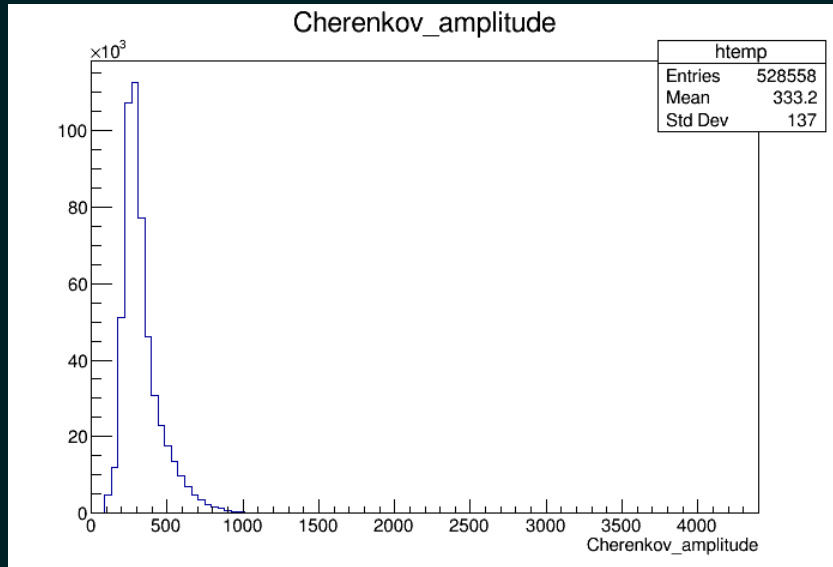
Alignment

DWC already alignment and calibrated

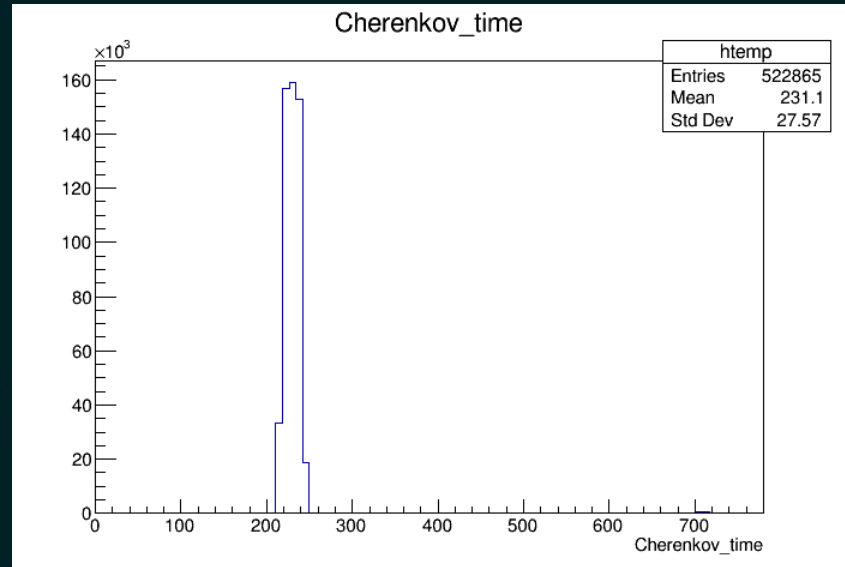


E: 5 GeV

QDC (Charge Digital Converter)



TDC (Time Digital Converter)

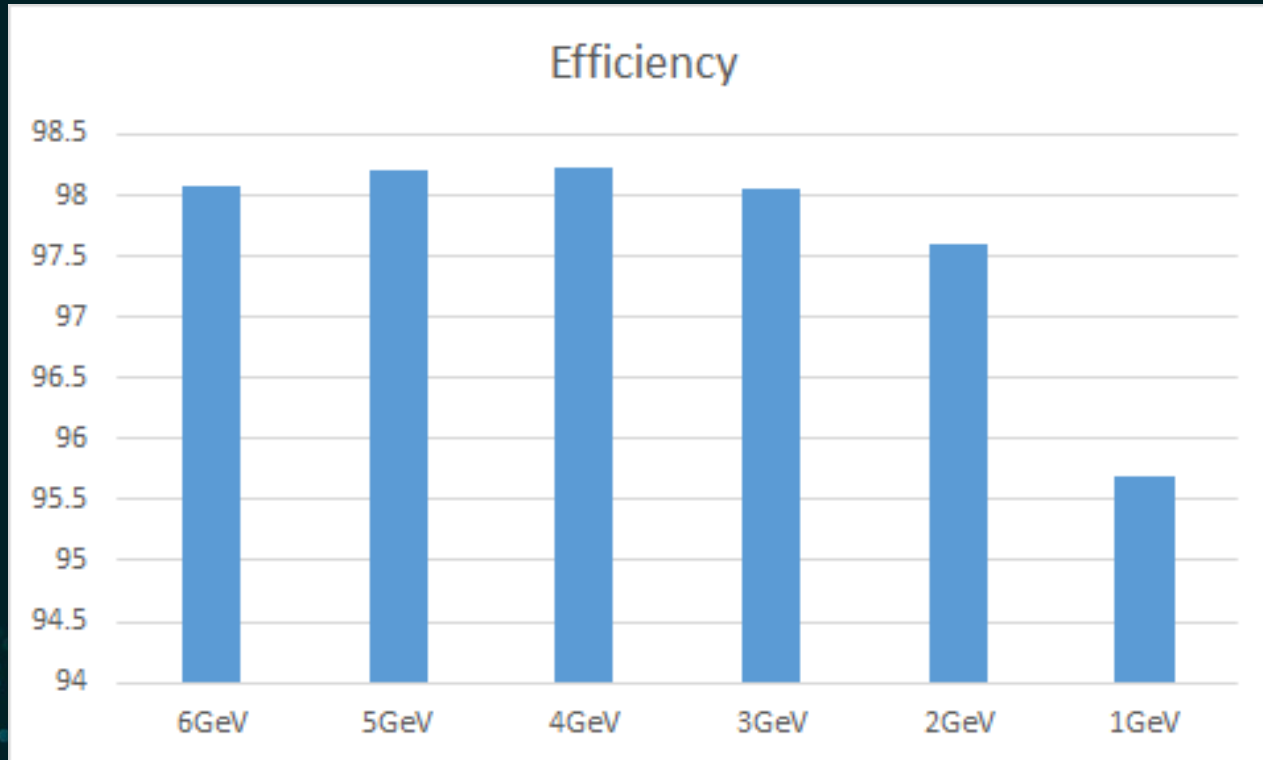


Medium : Water

Radiator Tyvek

Particles: Electrons

Detector: PMT

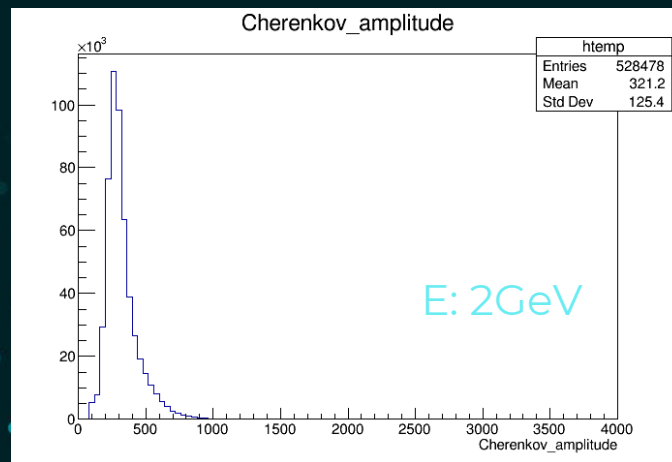
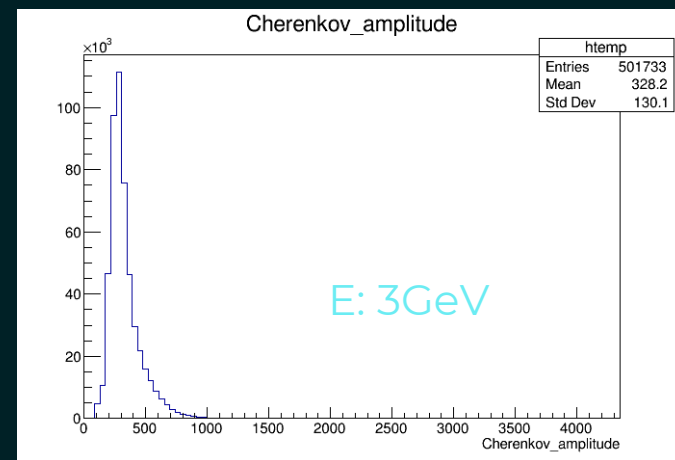
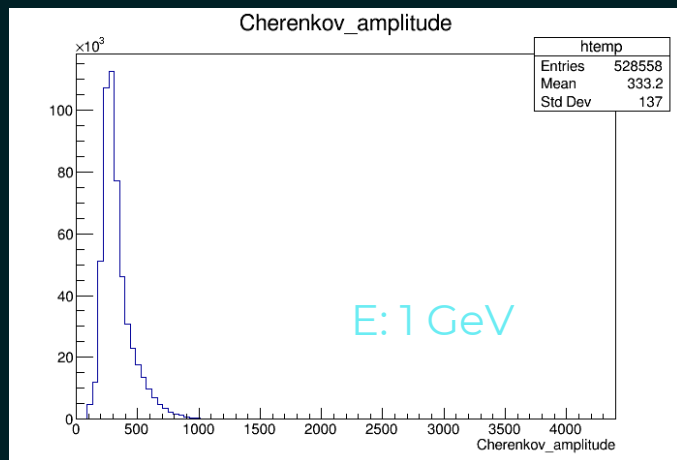


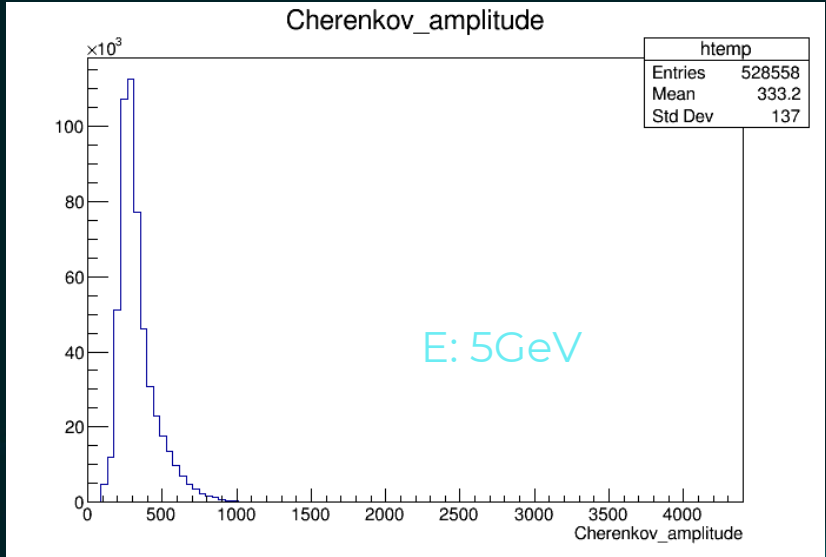
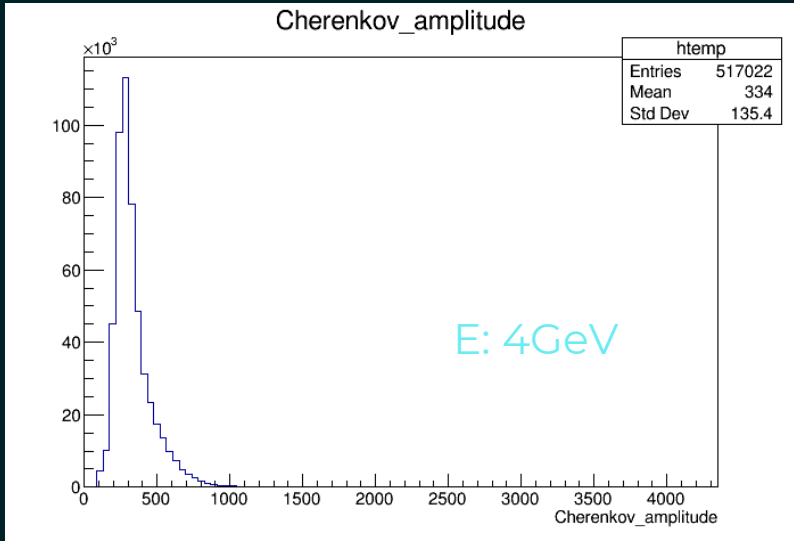
Medium: Water

Radiator: Tyvek

Particles: Electrons

Detector: PMT



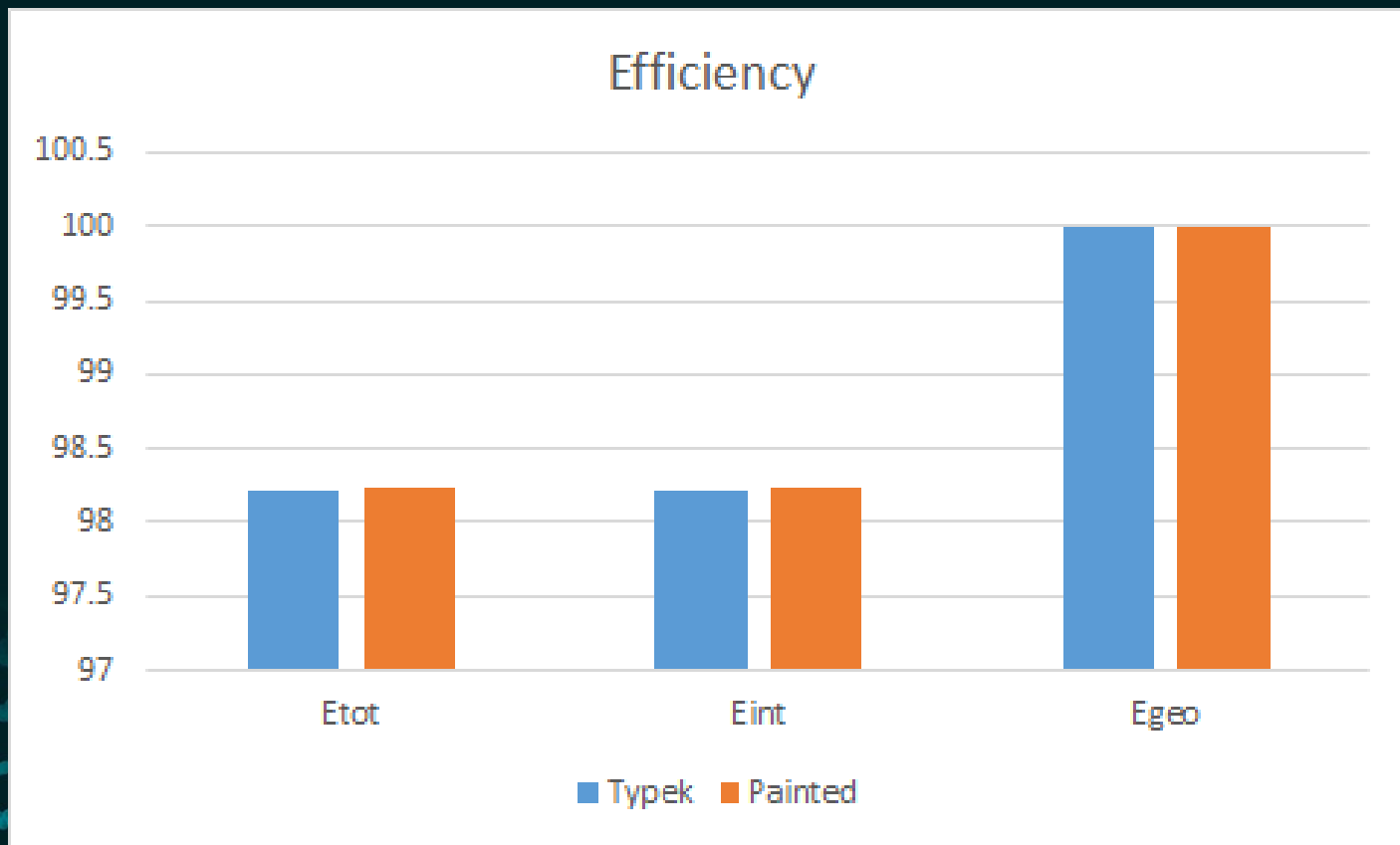


Medium: Water

Radiator: Tyvek or Painted

Particles: Electrons

Detector: PMT

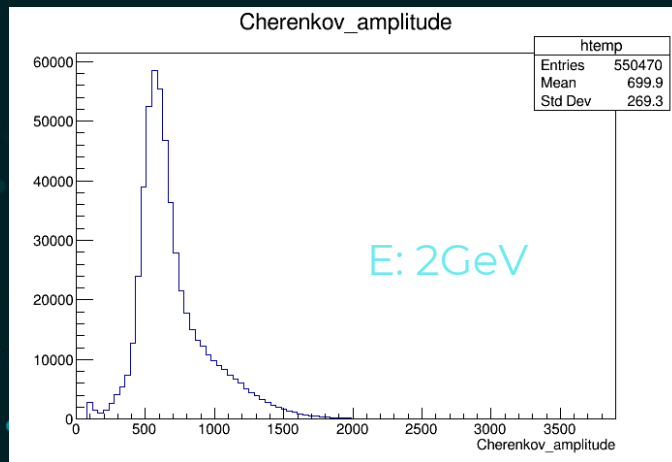
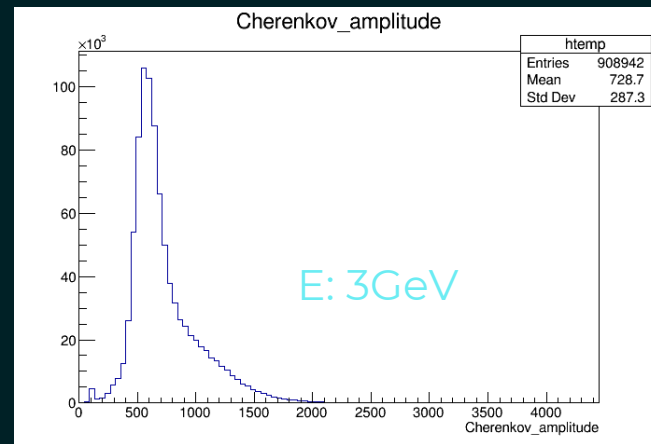
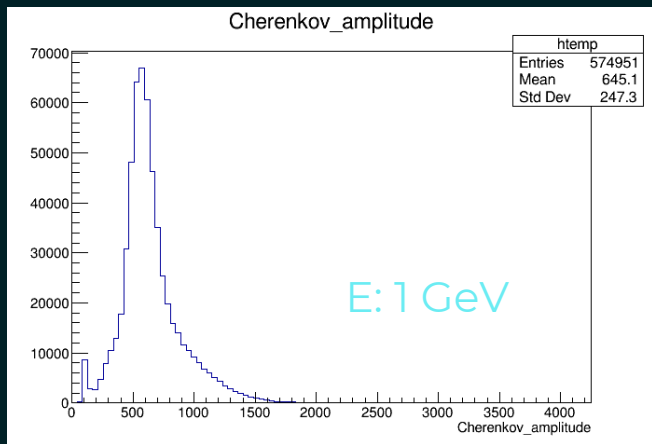


Medium : Water

Radiator Painted

Particles: Electrons

Detector: PMT

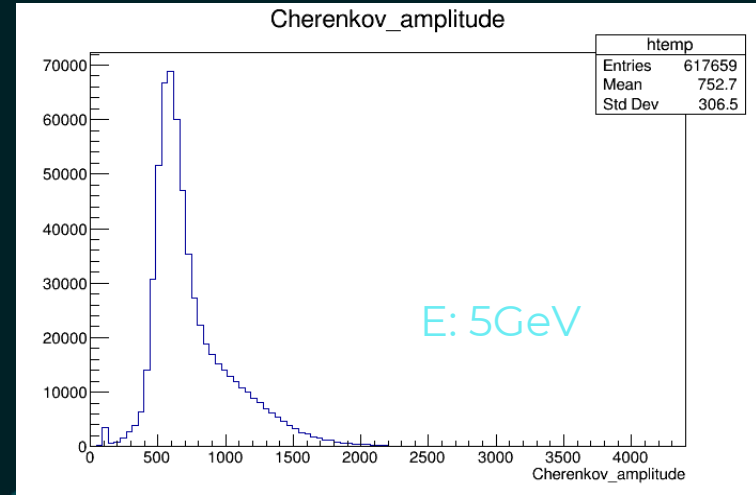
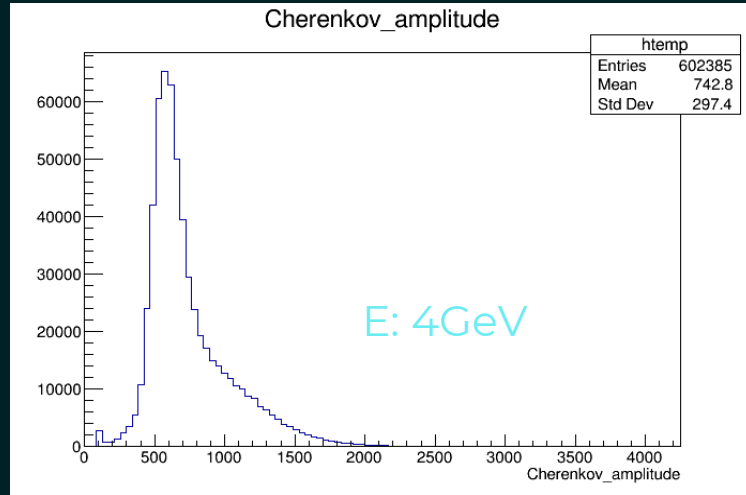


Medium : Water

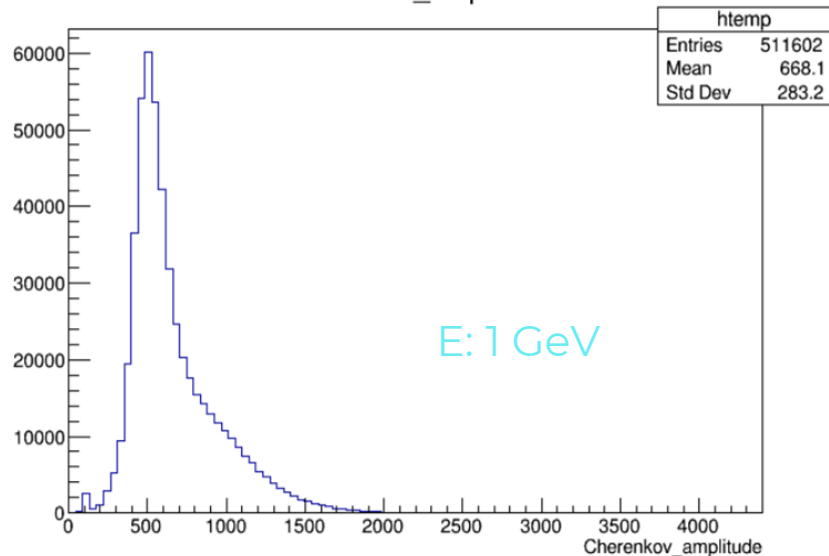
Radiator Painted

Particles: Electrons

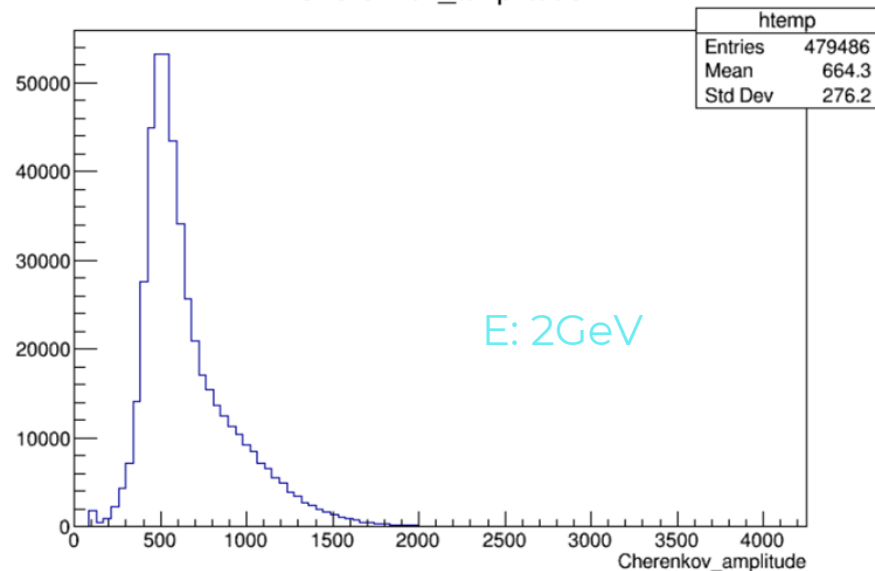
Detector: PMT



Cherenkov_amplitude



Cherenkov_amplitude

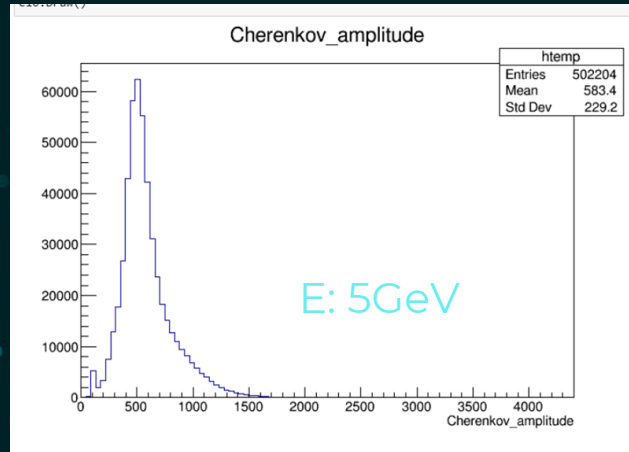
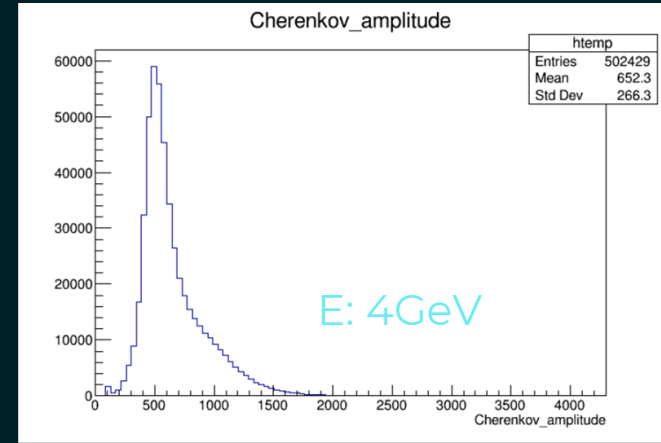
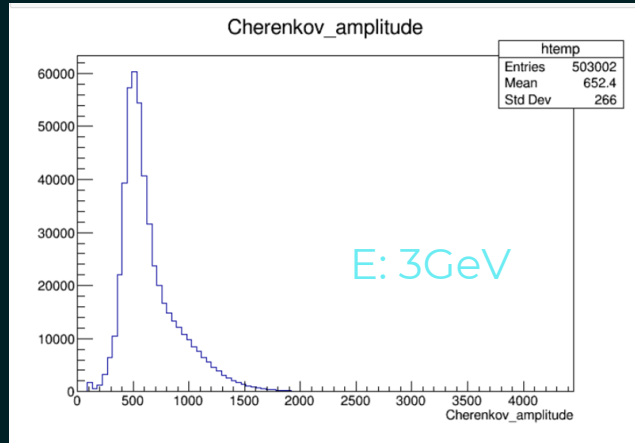


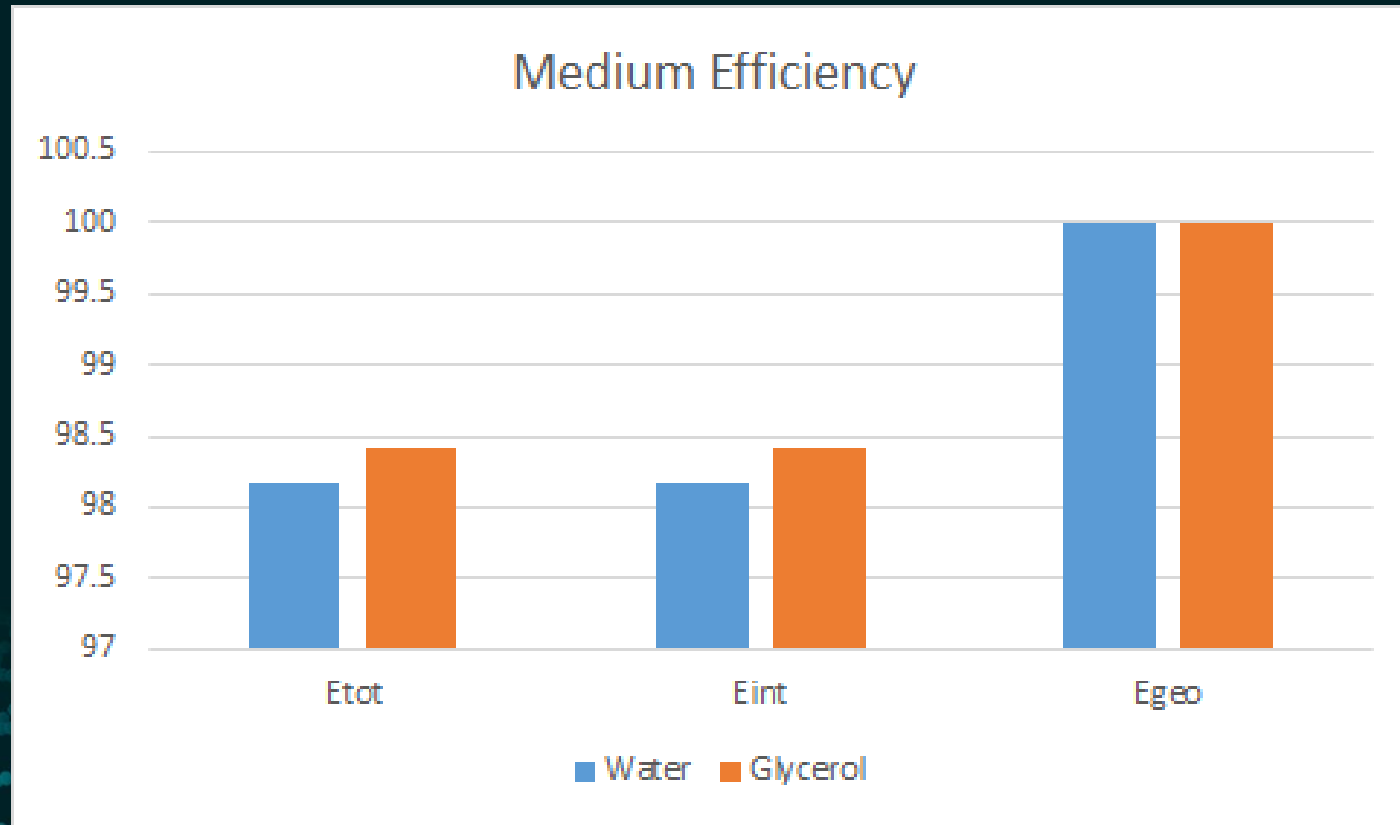
Medium: Glycerol

Painted Radiator

Particles: Electron

Detector: PMT





Results

Medium	Energy	M. Reflective	Particles	Type of PM	Etot	Eint	Egeo
Water	5-1GeV	Typek	e^-	PMT	0,9805015	0,9805152	0,9999860
Water	6-1GeV	Pinted	e^-	PMT	0,9823613	0,9823695	0,9999916
Glycerol	6-1GeV	Pinted	e^-	PMT	0,9841830	0,9841830	1
A. Quinine	5-1GeV	Pinted	e^-	PMT			
G. Quinine	5-1GeV	Pinted	e^-	PMT			
Water	5-1GeV	Pinted	e^+	PMT			
Glycerol	5-1GeV	Pinted	e^+	PMT			
Water	5-1GeV	Pinted	e^-	SiPM			

Thank you all



Wilhelm and Else Heraeus
Foundation



Arconic Foundation



Amgen Switzerland



Ernest Solvay Fund
managed by King Baudouin



At last but not least



MARKUS



CRISTOVAO



PAUL



MARGHERITA

A

