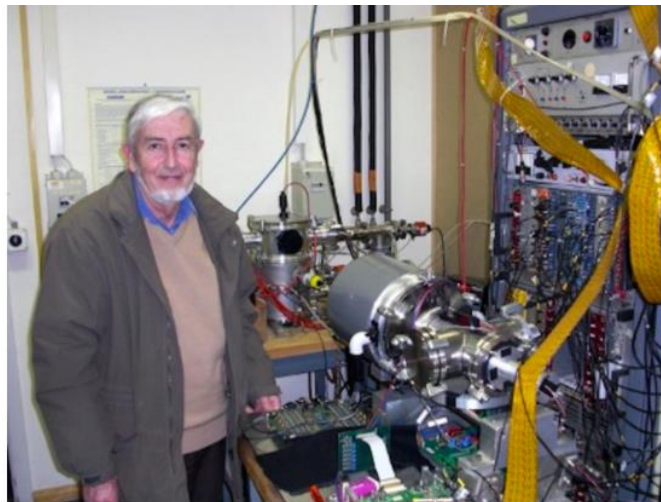
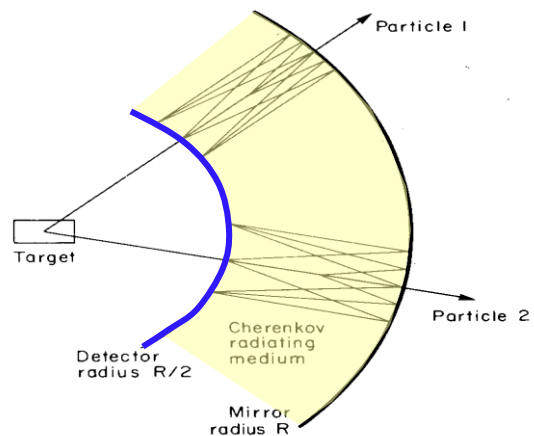


Jacques Seguinot: A great detector physicist

1932 – 2020



J. Seguinot and T. Ypsilantis, Nucl. Instr. and Meth.142 (1977) 377



Tom Ypsilantis, Paris, ca 1983.



Jacques Séguinot short CV

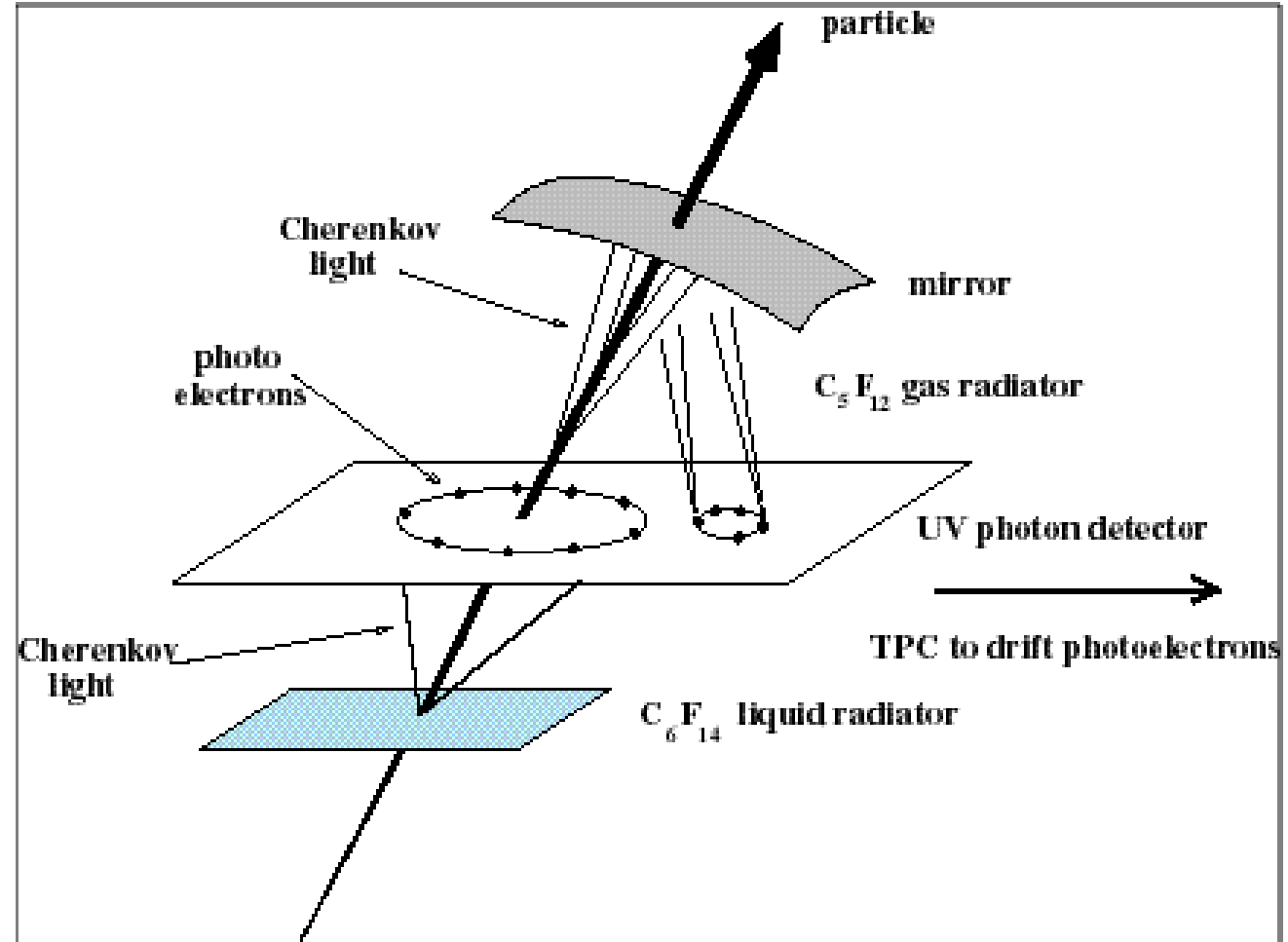
- 1932 Born in Vendée.
- Diploma electromechanical engineering at the University of Caen
- 1954 PhD in physical sciences in.
- 1981 research director at CdF
- 1990 retirement

Jacques Séguinot research activities

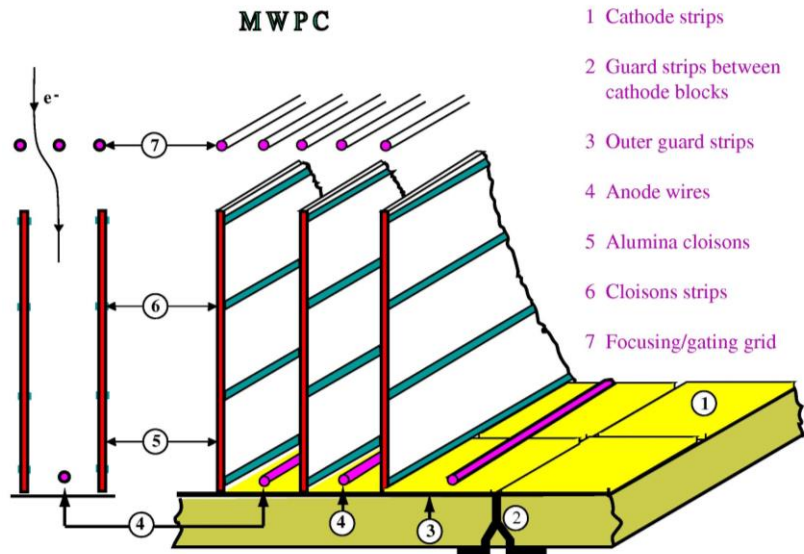
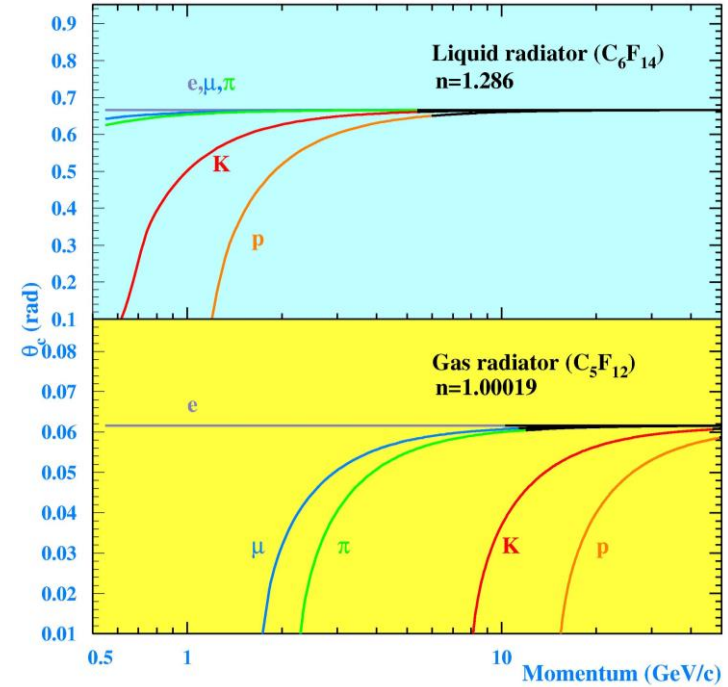
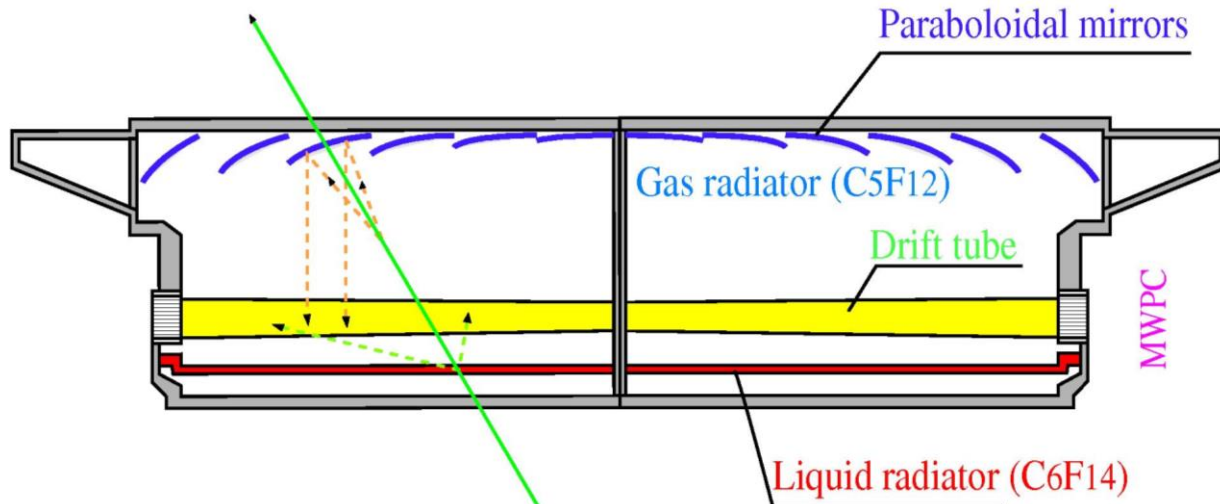
- Middle of 1950 at the French cosmic ray laboratory on the Col du Midi (3500 m)
- From 1960 nuclear physics at Saturne (CEA Saclay)
- From 1964 at the CERN PS, studying strong interactions with pion and kaon beams.
- Around 1970 Jacques started collaborating with Tom Ypsilantis
- 1977 paper, co-authored by Tom Ypsilantis establishing the basis of the RICH.
- During 1980 RICH proposal For DELPHI-LEP development of BARREL RICH
- From 1988 fast RICH for the Swiss B-factory at PSI
- From 1992 proposal of HELLAZ neutrino experiment
- end-1990s, photodetectors sensitive to visible light: Hybrid Photo Detectors (HPD)

Schematic of the DELPHI RICH detector

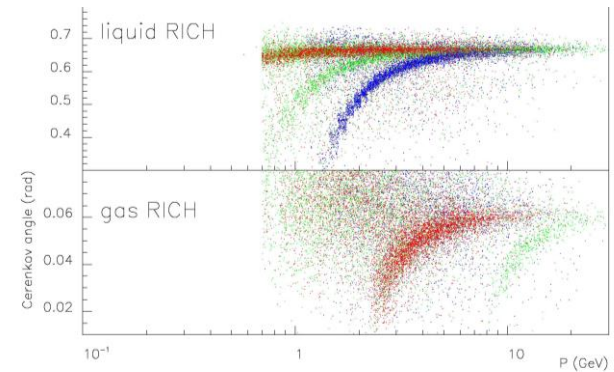
- Same for SLD detector:
- Liquid radiators enclosed in quartz AND gas radiators. TMAE based wire chambers with long drift in E field



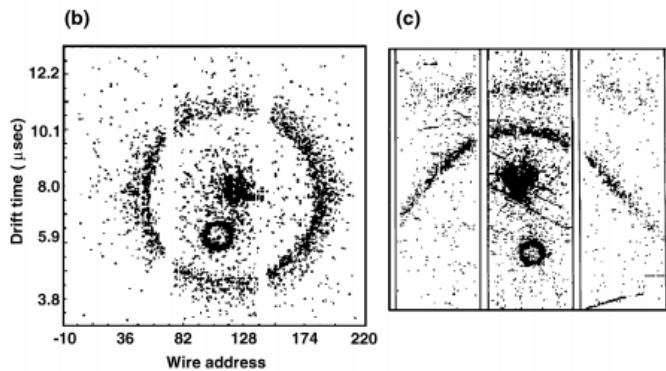
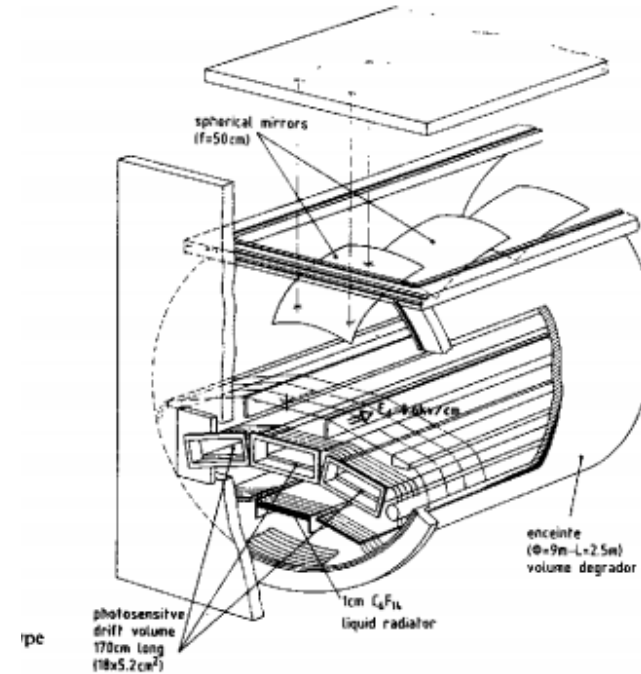
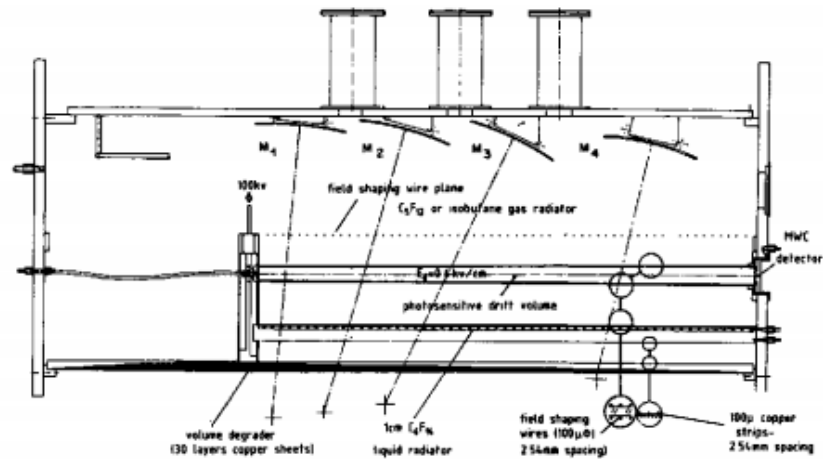
DELPHI RICH



Particle ID with DELPHI RICH



DELPHI RICH PROTOTYPE DESIGN AND RESULTS



R. ARNOLD, P. BAILLON, J. D BERST, H.J. BESCH, M. BOSTEELS, E. CHRISTOPHEL Y. GIOMATARIS, J.L. GUYONNET, G. PASSARDI, J. SEGUINOT, J. TOQUEVILLE, D. TOET and T. YPSILANTIS, ‘Photosensitive gas detectors for the ring-imaging Cherenkov (RICH) technique and the delphi barrel rich prototype’, Nuclear Instrumentation and Methods in Physics Research A270 (1988) 255-288
 R. Arnold et al., Nuclear Instruments and Methods in Physics Research A270 (1988) 289-318
 R. Arnold et al., Nucl.Instrum.Meth.A 273 (1988) 466

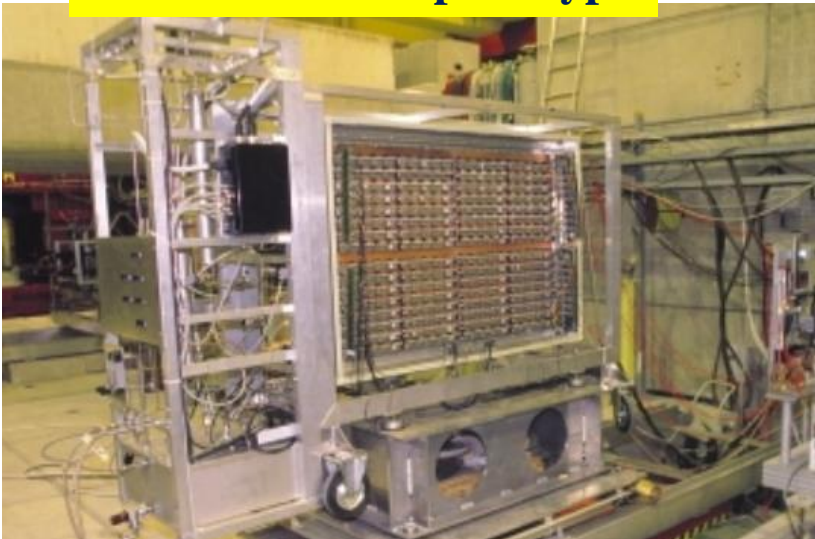
- Good detector stability with high single-electron efficiency
- Liquid, gas radiator and quartz window kept at optimal UV transmission
- Good angular resolution close to expected value
- Good handling-purification of TMAE; long electron absorption length

RICH technology has been widely used in many experiments in eighties and nineties
At LEP, many fixed target experiments at CERN, FNAL, JLAB, JPARC,
heavy ion experiments CERN-Brookhaven-GSI

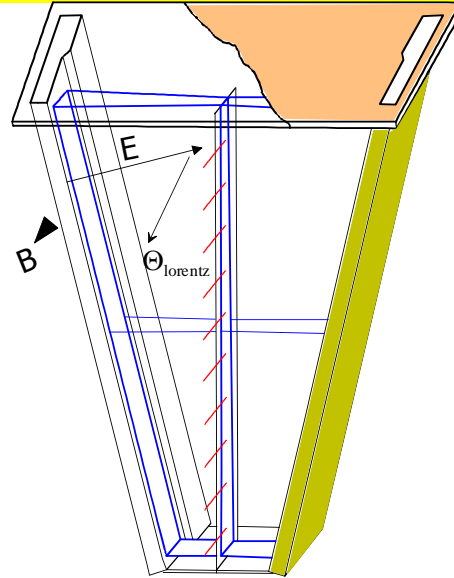
RICH: E605 experiment at FNAL (1985-95)
CERN-FNAL-KEK- Saclay



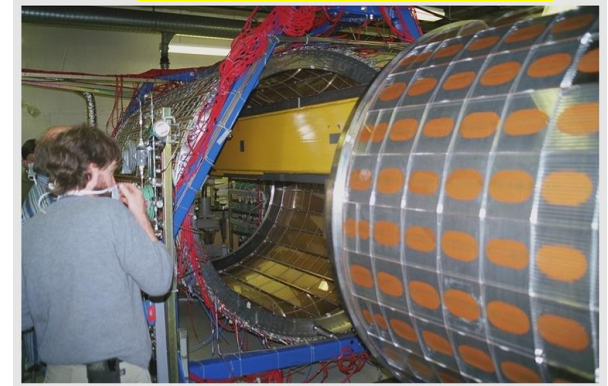
ALICE-HMPID prototype



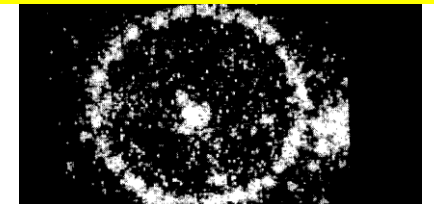
Forward DELPHI RICH Detector



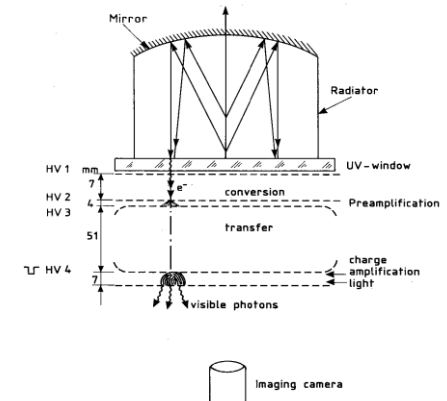
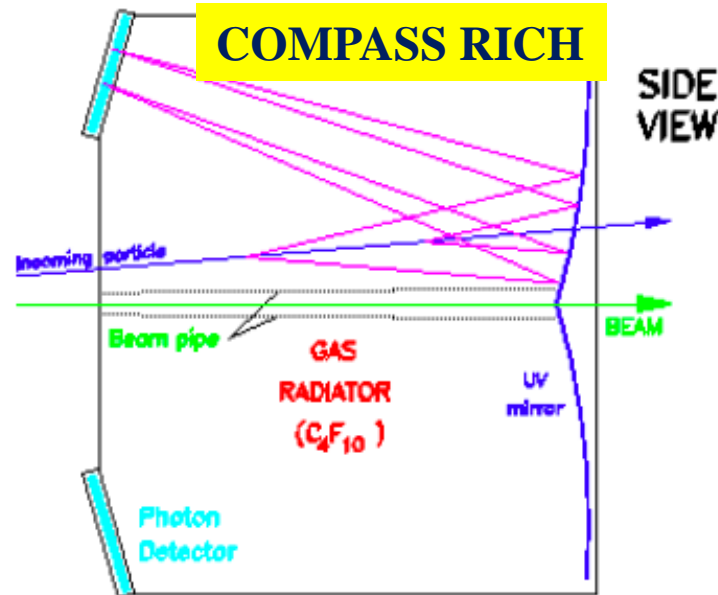
CLEO fast RICH with TEA



A high-energy gamma ray telescope
I. Giomataris; G. Charpak, CERN-EP-88-94



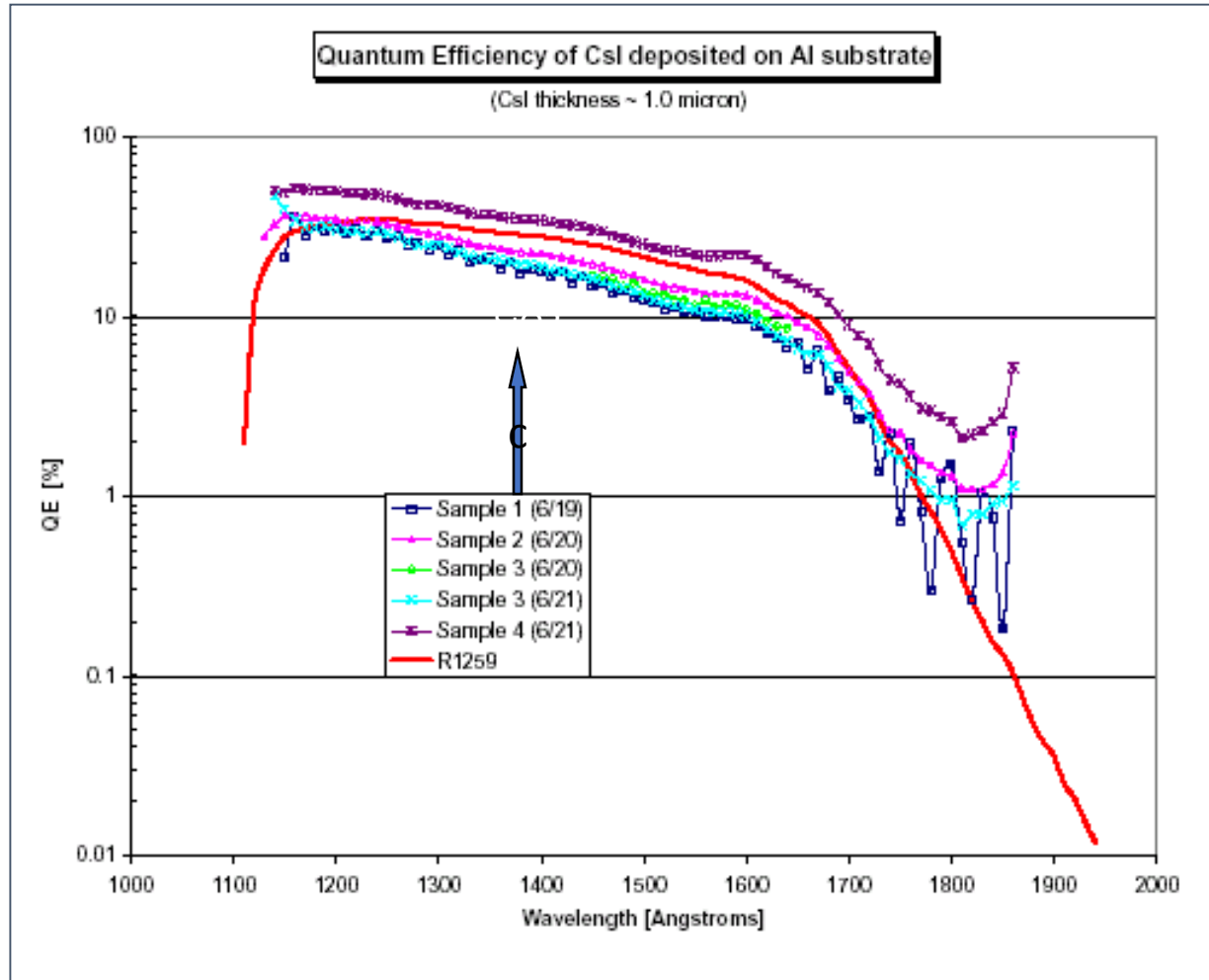
COMPASS RICH



Imaging camera

CsI solid photocathode

J. Seguinot, Georges Charpak, Y. Giomataris, V. Peskov, J. Tischhauser, T. Ypsilantis,
Nucl.Instrum.Meth.A297:133-147,1990



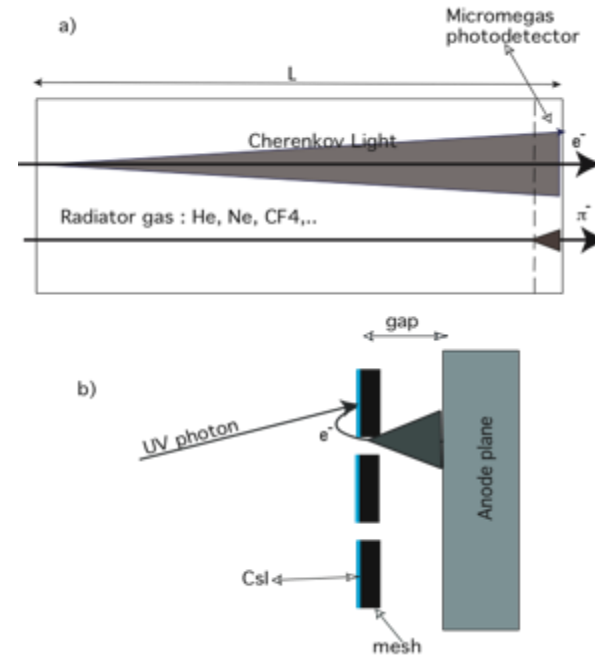
**This work has triggered
An active research
over the world**

Experiments using CsI photocathodes

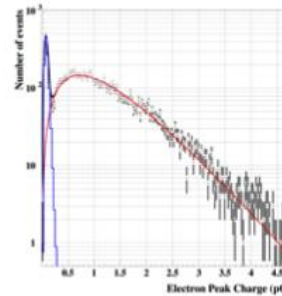
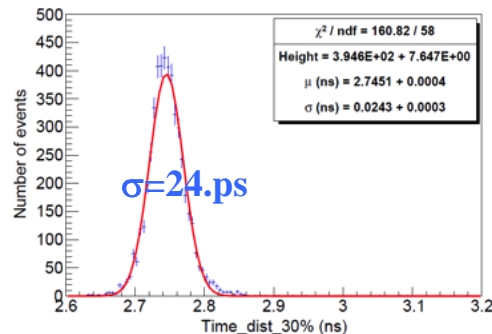
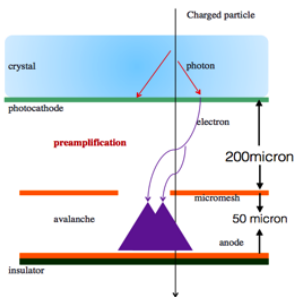
Experiment	Id. aim (Radiator type)	Momentum range (GeV/c)	# CsI PCs (total m ²)	Status
NA44 TIC CERN	π^\pm/K^\pm (gas)	3-8	2 (~0.3)	Terminated
STAR RICH BNL	π^\pm/K^\pm p/p (liquid)	1-3 2-5	4 (~1)	Terminated
ALICE HMPID CERN	π^\pm/K^\pm p/p (liquid)	1-3 2-5	42 (~10)	in preparation
HADES RICH GSI	Hadron blind	<1.5	18 (1.5)	Running
COMPASS RICH1 CERN	π^\pm/K^\pm p/p (gas)	<60	16 (~5.8)	Running
HALL-A RICH JLab	π^\pm/K^\pm p/p (liquid)	<4	3 (~0.7)	Starting

HBD a Hadron Blind Detector

Y. Giomataris and G. Charpak, NIM. A310 (1991) 589



Fast timing Picosecond Micromegas

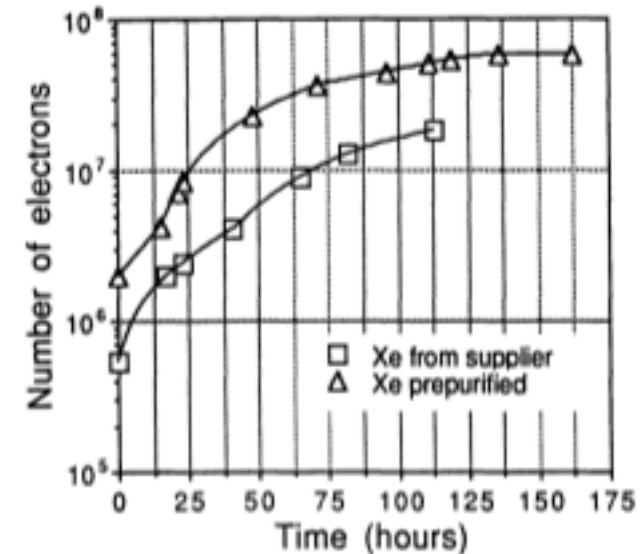
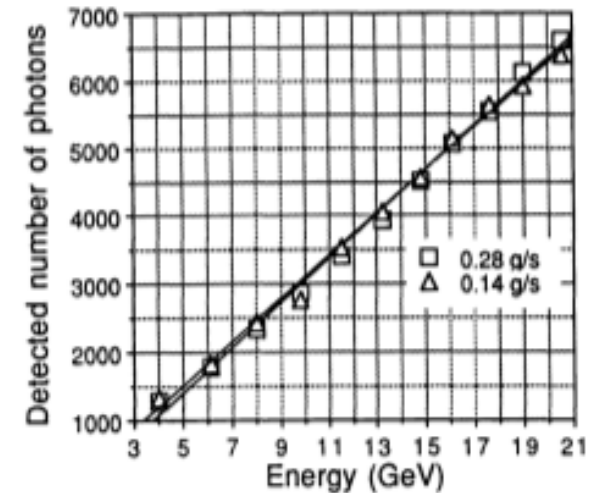
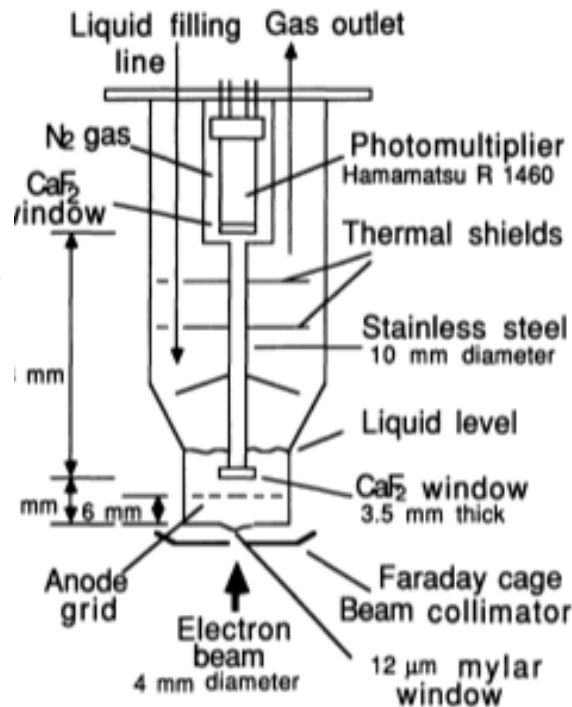
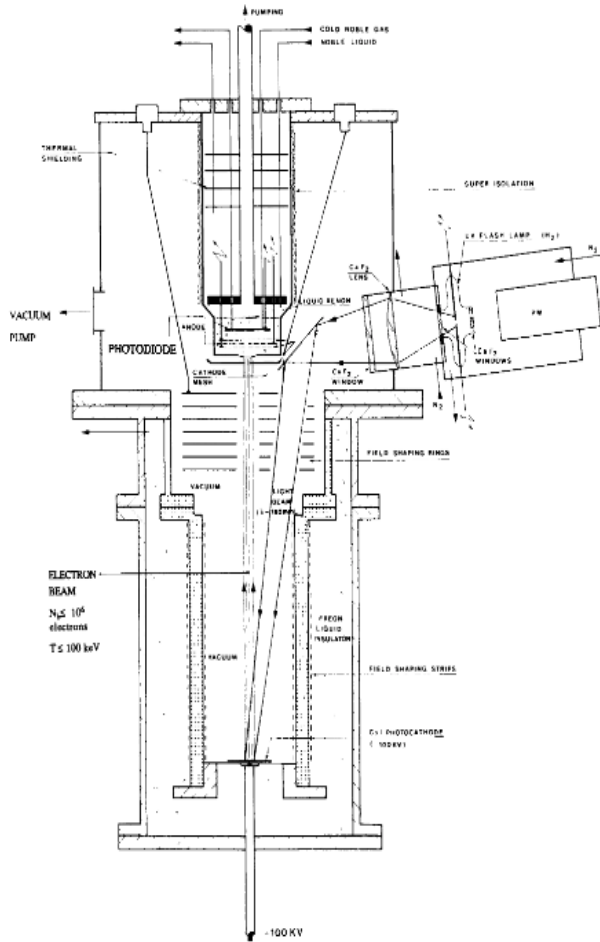


The PHENIX Hadron Blind Detector
 The Hadron Blind Detector at J-PARC
 The Hadron Blind Detector at J-PARC
 And future projects in review
 I. Tserruya, K. Aoki, C. Wood,
 Nucl. Instrum. Meth. A 970 (2020)

A totally active Xenon calorimeter

Charge and scintillation read-out

J. Seguinot, T. Ypsilantis, M. Bosteels, G. Passardi, J. Tischhauser, Y. Giomataris
Advances in cryogenic Engineering 37B(1992)1137
J. Seguinot et al., NIM A323(1992)583

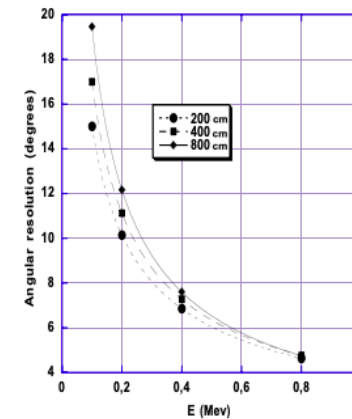
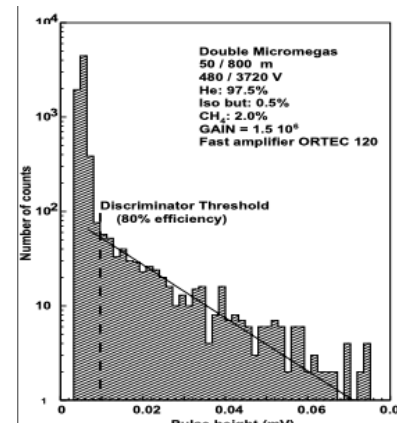
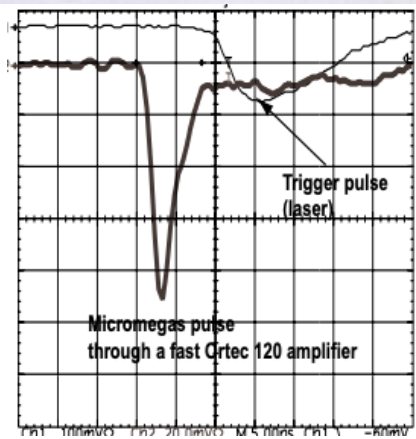
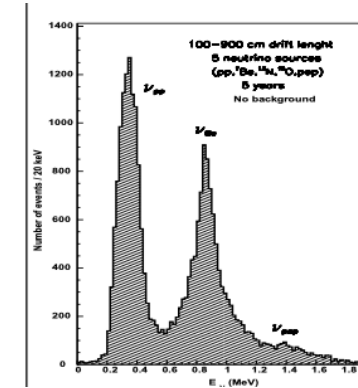
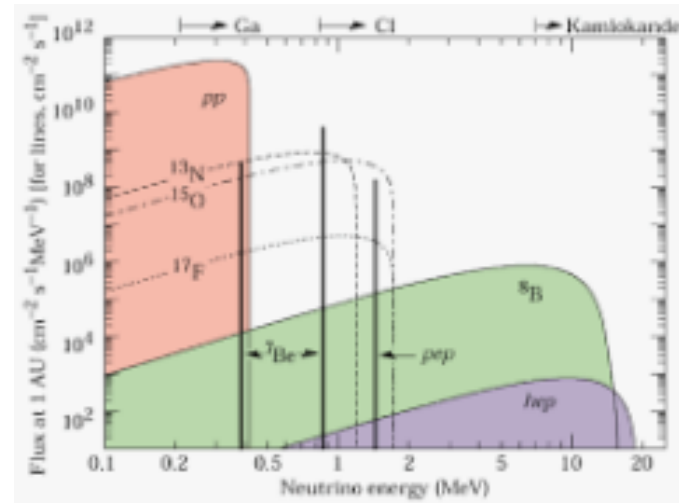
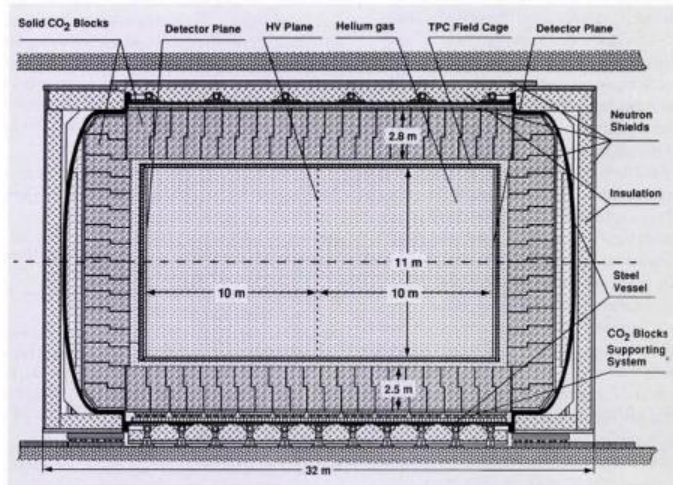


The HELLAZ neutrino detector

T. Ypsilantis, Europhysics News, 1996

J. Seguinot, T. Ypsilantis, G. Bonvincini, P. Giusti, G. Laurenti and A. Zichichi, CERN-LAA/95-11

G. Laurenti, S. Tzamarias, G. Bonvincini, A. Zichichi, J. Seguinot and T. Ypsilantis, CERN/LAA/PC/93-1



P. Gorodetzky et al. "Identification of solar neutrinos by individual electron counting in HELLAZ", Nucl. Instr. and Meth. A 443 (1999) 554

HPD Hybrid Photon Detector for RICH, LHC-B, PET, Neutrino Telescopes

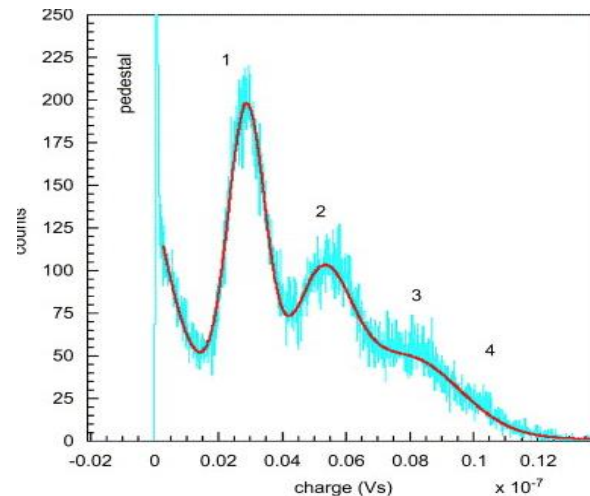
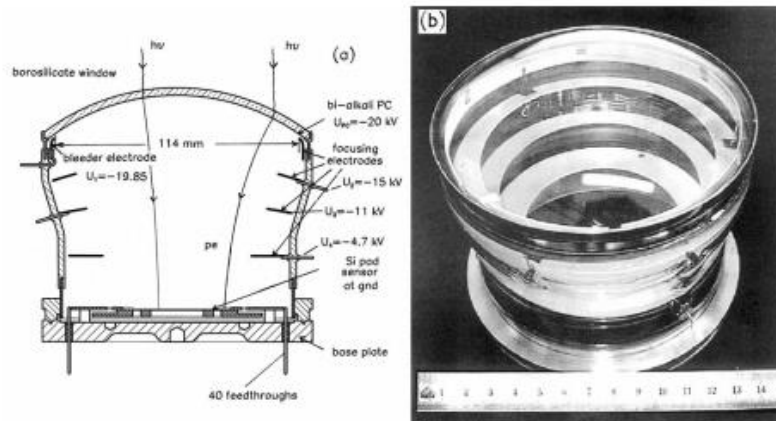
A. Braem, C. Joram, F. Piuz, E. Schyns and J. Seguinot, *NIM. A* 502 (2003) 205.

A. Braem et al., *Nucl. Instr. Meth. A* 570 (2007) 467.

A. Braem et al., *Nucl. Instr. Meth. A* 581 (2007) 469



Highly segmented large-area hybrid photodiodes with alkali photocathodes and enclosed VLSI readout electronics



Jacques has put his stamp on detector physics
We will remember him for ever

