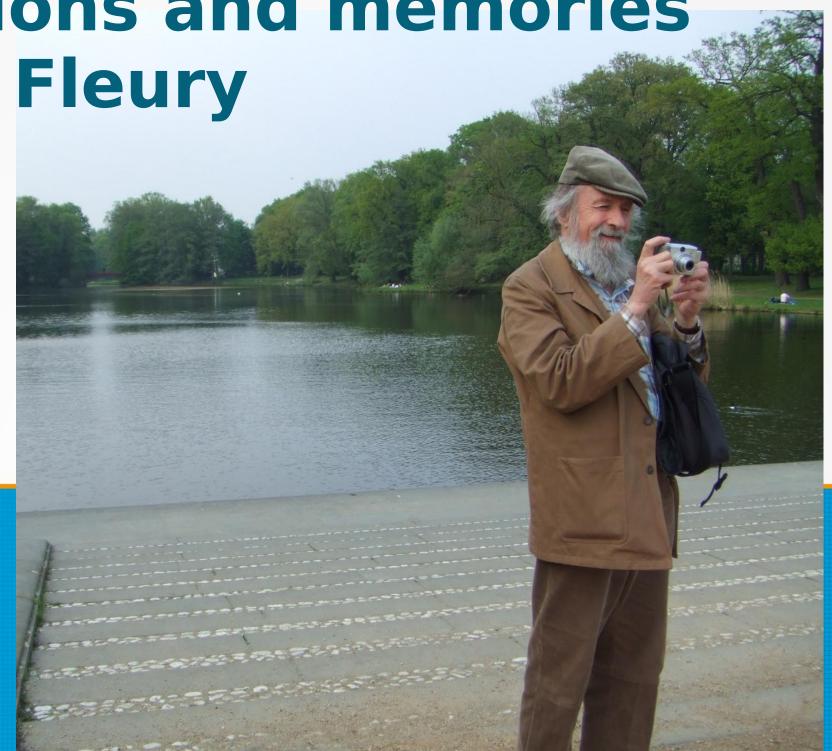
Contributions and memories of Patrick Fleury

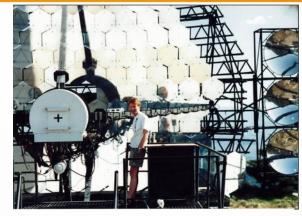
- a powerhouse of projects and a supporter of young physicists

M. Punch



First Encounters at Whipple

- The Polytechnique group came to Whipple Observatory, Arizona, for Artemis
 - I was there for 2 years during my thesis, so I showed them how the telescopes and observations worked.
- The group were a bit like extraterrestrials at Mt Hopkins, with lots of cooking of dinners (with wine, later forbidden) before observing, smoking outside together shivering in the snow
- Dave already mentioned that this experience gave Patrick & Eric a strong taste for gamma-ray astronomy
 - So after being blocked from joining Whipple they started their own French Project, named CAT.
- Patrick invited me to do a post-doc on CAT, with the first task being to translate the "Project Report" document from French into English (even before arriving at Polytechnique!)







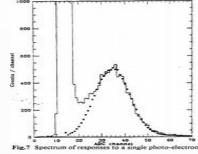


Marcel

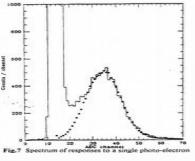


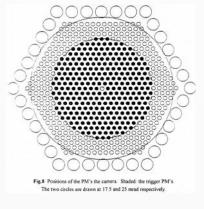


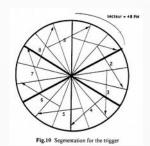
- All the major ideas for CAT were already in the "CAT Project Report", including:
 - the insistence on using the **timing** for the trigger coincidence, so using comparators instead of discriminators
 - The measurement of the **Single Photo Electron** response for calibration (even if at 3x the nominal gain), which also implied having a shelter, besides being a protection from wind & weather



- fine pixelization and so sectorization of the trigger
- Even mentioning the possibility of using analogue memories (developed at CERN)
- We find all of these and more, for HESS







Project Report (Version 1.0)

20th September 1993

CHERENKOV DETECTION OF GAMMA RAYS AND COSMIC HADRONS

Cherenkov Array at Thémis

CAT

Project report

Project for a development on the site of the systems THÉMISTOCLE & ASGAT at Thémis associating wave-front sampling with high-definition imaging

Bernard Degrange b, Robert Bazer-Bachi d, Jean-Noël Capdevielle i, Bernard Fabre 8, Patrick Fleury b, Gérard Fontaine b, Roger Georgec, Claude Ghesquière a, Philippe Goret c, Christian Gouiffes c, Isabelle Grenier c.f, Christian Meynadier 8, Ung Nguyen-Khac b, Eric Paré b, Yvette Pons c, Michael Punch b, Monique Rivoal c, Bruno Rivoire h, Marcel Urban b & Jirka Vrana b,

Other countries:

Paul Baillon (CERN) J, David Fegan (Ir.) k Thomas Palfrey (USA) Gianni Navarra & Carlo Morello (IL) m

- a LPC Collège de France & IN2P3;
- b LPNHE- Ecole Polytechnique & IN2P3;
- c LPNHE- Universités Paris 6-7 & IN2P3;
- d CESR, Toulouse & INSU:
- 6 SAp DAPNIA, CEA-Saclay:
- f Université Paris 7;
- 8 Université de Perpignan
- h IMP Odeillo-Perpignan, CNRS;
- i LPT-Université de Bordeaux l:

- k University College, Dublin, Ireland;
- Purdue University, Indiana, USA;
- " CNR-INFN, Torino, Italy.



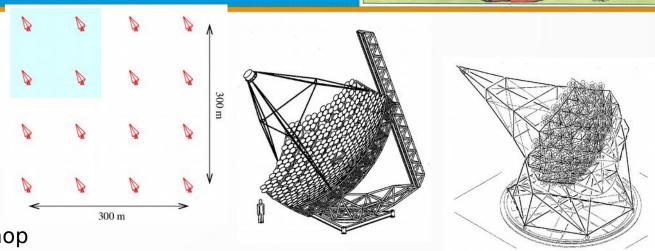
12/09/18

Patrick Fleury Commemoration

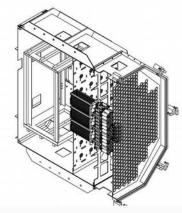
The launch of HESS

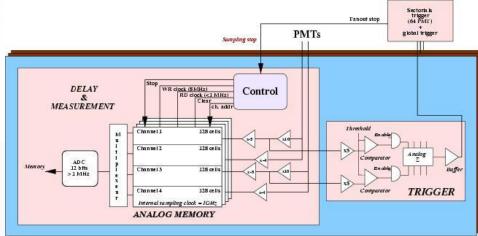


- We were a bit surprised at initial HESS proposal
 - 16 telescopes on rails
 - 0.25deg pixels (0.15° as option)
 - site in Calar Alto in Spain
 - (though "fallback" to La Palma, then to Gamsberg in Namibia)
- Patrick's impassioned speech at Kruger Park workshop
 - The new detector must be placed in the Southern hemisphere
 - for Galactic science, and since
 - already VERITAS planned in the North, at Whipple
- We then planned for a French camera
 - designed by the people working on CAT
 - using many of the same ideas (comparators, fine pixels, SPE),
 - later with the introduction of analogue memories (ARSO, from Antares) by Jussieu (P. Vincent, P. Nayman)



Figures from W. Hoffman, Kruger Park Workshop '97





The launch of HESS

- Many difficulties obtaining guarantees for financing for 4 French cameras
 - the authorities proposing initially ½ financed by Germany (although there was already a German-designed camera).
- With the insistence of Patrick and others of us, finally
 - obtained a agreement (Snowmass workshop, 1999)
 for 1M€ to finance 4 cameras (plus 2M€ manpower),
 as an offer to make to join HESS
- Even with this offer, difficult get HESS agreement to French cameras
 - though we were convinced as with CAT that the electronics would have a lower threshold thanks to the trigger electronics,
 - better background rejection and resolution thanks to the finer pixelization.
- Patrick remained convinced to the end that the decision was obvious for political reasons, since if HESS had remained a purely German experiment it would have disappeared faced with the German-Spanish-CERN experiment MAGIC
 - but he believed Werner made a trip to the LPNHE to check on the performances of the ARS chips and associated electronics before deciding.
 - Maybe Werner could comment on the politics, now that HESS is nearing the end of its life?

INSTITUT NATIONAL DE PHYSIQUE NUCLÉAIRE ET DE PHYSIQUE DES PARTI

IN 2 P 3

3, SUE MICHEL-ANGE * 75794 PARIS CEREY 16
Tel.: 01 44 96 40 00 * Teleconic: 01 44 96 50 04

S/gf/cl 008.00

Paris, February 23th 2000

Professor Heinrich J. VÖLK Max-Plank-Institut für Kernphysik Postfach 10 39 80 D-69029 Heidelberg

Object: H.E.S.S. Collaboration

Dear Heinz,

Following our discussion about the H.E.S.S. project at the CNRS meeting in January, I am glad to confirm the IN2P3 support to the participation of French groups from LPNHE-X, LPNHE P6&7, and PCC-CdF to the phase I of H.E.S.S.. This project, based on the experience gained in our two institutes with the HEGRA and the CAT detectors, will represent an important progress in the field of high energy gamma-ray astronomy.

These French groups will take the responsibility of the design and construction of the mechanics and the fast electronics of the focal cameras with an initial field of view of ~4.6° for the four telescopes. The corresponding estimated cost of 962 K-Euros includes the procurement of the ARS chips and is expected to be spread over several years until 2002. I take note that the phototubes, bases and HV will be provided by the MPIK, and that the extension of the field of view up to ~5° will be considered in the future by the collaboration as a whole. To implement this contribution, IN2P3 will, in addition to the research scientists, provide 19,5 man-years of engineers and 7,5 man-years of technicians for a corresponding cost of 2 164 K-Euros. These figures have to be confirmed in a MoU which must be agreed upon and signed in a very near future to better define the sharing of tasks, the planning of construction, and the steering structure of the collaboration where I expect to see IN2P3 playing a significant role.

In connection with the IN2P3 contribution, the CEA/DAPNIA is providing the design of the ARS chip and the corresponding test bench estimated at 23 K€. This contribution is accompanied by a specific additional manpower effort of 1,5 man-year of engineer estimated at 143 K€. In addition, a complementary funding of 27 K€ has been provided by the Paris University for the development of the analogue memory cards.

From the documents you sent previously to G. Fontaine, I understand that MPIK and MPG will together fund the phase I construction at a level of 3 455 K-Euros in capital

CENTRE NATIONAL DE LA RECHERCHE SCIEN

investment; and that MPIK will provide 11 man-years of engineers and 43,5 man-years of technicians for the project technical manpower.

It seems to me important that German engineers or physicists are associated with the French teams for the testing and the assembly of the cameras so that the expertise about this crucial device is well shared within the collaboration. This cooperative work will strongly benefit from the LEA project now under consideration.

In addition, since the money allocation has to be made on a yearly basis within the IN2P3 budget, I propose that we meet once a year in a sort of Finance Committee to review the progresses of the collaboration, the financial status, and the needs for the year to come.

With my very best regards,

despo

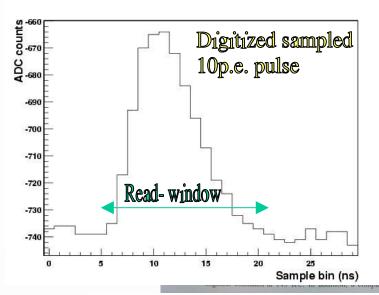
Michel Spiro
in charge of Astroparticle programs for CNRS/IN2P3 and CEA/DSM

Paris, February 23th 2000

Professor Heinrich J. VÖLK

Object: H.E.S.S. Collaboration

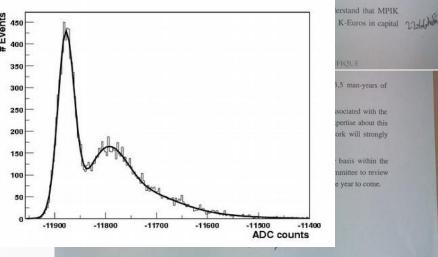
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in charge of Astroparticle programs for CNRS/IN2P3 and CEA/DSM

Travels with Patrick

- Many conferences, workshops...
 - Heidelberg, Moriond, Utah, South Africa,
 MAGIC-I inauguration, Berlin, and ...
 - Dancing on the tables after hours in a village fete near Heidelberg, early 90's
 - Patrick playing with new pedometer, walking 40km in Berlin in 2006 (photo on first page)
- Patrick was not one to schmooze, but still would interact with the key people
 - They would be attracted by his intensity and continuous flow of ideas
 - He would also use humour, especially to try to reduce conflicts, e.g. waltzing with Trevor Weekes at Moriond
- In time off, much exploration of the local environment with discussions
 - Physics, Politics, the end of oil and civilization, the worry about losing mental acuity



Patrick's legacy

- Patrick was always passionate about his work and getting new projects off the ground
- With this dynamic helping young researchers, so became a "father" or "grandfather" to many
 - much time coaching or trying to help people in their careers so the projects would advance,
 e.g. supporting myself, Arache, Régis, Berrie, Fred, Bruno, Anne to get positions
 (coaching CNRS auditions...) not with invariable success.
- At ease talking with all the people in labs
 - maybe moreso with the technicians and engineers!
- Fascinated by people with whom he had big conflicts, who once the problem was decided were back to normal in relations after... not really Patrick's way
- A strong talent to mythologize events, like the first observations with CAT or negotiations on HESS, so that everyone seemed larger than life and more heroic (as a motivator)
- His legacy remains in
 - the many projects he launched, resulting in major discoveries
 - the many people he helped along the way, continuing on the paths where he cleared the way