GEORGEFEST. BUBBLE CHAMBERS AT RAL AND SLAC

T BACON 16 APRIL 2015

BUBBLE CHAMBERS AT RAL AND SLAC (AND CERN).

NIRNS-RAL (1) Heavy Liquids (Propane)

(Helium)

(2)Hydrogen/Deuterium

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(3)SLAC Rapid Cycling HBC exposed to a back-scattered laser beam (20 GeV) for charmed meson studies (lifetimes and production cross-sections).

(1) GEK AND HEAVY LIQUID BC

(Glaser. Pentane bc 1952. Cyril Dodd UCL Pentane bc 1956.)

GEK. PhD on 'Physical Properties of Bubble Chambers' 1956-9.

1959-62 UCL RA. Design magnet for RAL propane chamber. (Chamber complete 1965. Nimrod Physics 1964-1978.)

(1959 Berkeley LBL 72 inch HBC complete.)

1962-3 RA at LBL (TCB to BNL.)

1963-4 Lecturer at UCL

1964-1971 LBL

1965"T Violation in Stopping K+ Decays" PRL (Propane bc.)

(1972-2000 RAL and UCL. Group Leader BCG and Delphi group, then Head of Particle Physics Department RAL.)

(2) GEK AND H/D BC AT RAL AND CERN

RAL Proposal 18 (From Proceedings of a Nimrod Commemoration Evening held in 1978 – Nimrod ran 1964-1978).

"A Partial Wave Analysis of two-body final states produced in K-p interactions was made. This experiment was the first in a series leading to the detailed and definitive pwa of the Imperial College and Rutherford Laboratory groups."

CEN Saclay; College de France; Rutherford Laboratory. **First publication listed is for 1968. The last one was 1981.**

The RL-IC collaboration used data from the Saclay 180 litre HBC at Nimrod (Kminus p, 1.263-1.843 GeV/c),The CERN 2M HBC (0.96-1.355 GeV/c and 0.92-1.040GeV/c) combined with data from other collaborations to produce an overall Kbar N Partial Wave Analysis for singly strange baryons. It featured heavily in the full *Review* of the Particle Data Group.

(2) CONTINUED.

RL-IC Collaboration in 1978:

RL: W.Cameron, B.Franek, G.P.Gopal, G.E.Kalmus, A.C.McPherson, R.T.Ross.

IC: T.C.Bacon, I.Butterworth, R.W.M.Hughes, P.Newham, R.A.Stern.

Previous members included P.J.Litchfield, B.Tallini (Saclay),E.F.Clayton, A.J. Van Horn, S.M.Deen, A.Brandstetter.

Results too extensive to review, but Eddie Clayton calculated Lambda (1115) lifetime:

0.2611 (0.002) ns. (cf PDG 0.2632 (0.002) ns.)

GEK AND SLAC RCHBC

Back-scattered UV laser photons off 30 GeV electrons to give 20 GeV photons (yields higher fraction of charm events than a hadron beam). 1m Hydrogen Chamber at 10 Hz. 19 collaborating groups.

Charm decays detected by a fourth camera of resolution 55 micron over a depth of 12 mm. Triggered cameras.

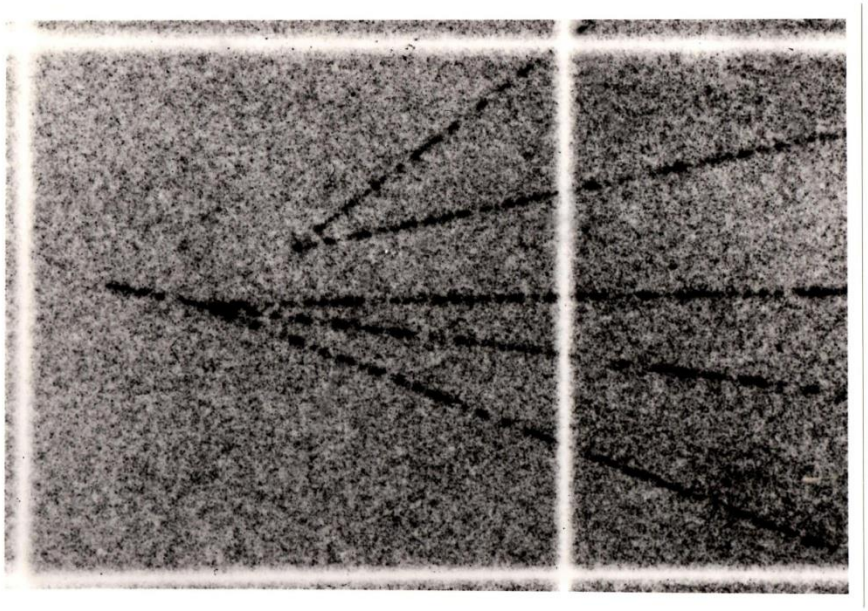
47 charm events, 11 neutral and 9 charged charm decays used for lifetime measurements:

Charged D: 740 (+230-210) fs. (PDG 1040 (7) fs.)

Neutral D: 680 (+230-180) fs. (PDG 410.1 (1.5) fs.)

(One Neutral D with 2180 fs. 'Methusaleh'.)

γ+p -> charm decays. (0.86 and 1.8 mm).



INTERNATIONAL CONFERENCE
ON FUNDAMENTAL ASPECTS OF WEAK INTERACTIONS

HELD AT
BROOKHAVEN NATIONAL LABORATORY

SESSION 1

Monday Morning, September 9, 1963

K-MESON DECAY PROCESSES

Chairman: V. L. Fitch

Contributed Papers	Authors
Anomalous Regeneration of K_1^o Mesons (presented by R.K. Adair) (will appear in Phys. Rev. 132, 2285 (1963).	L.B. Leipuner, W. Chinowksy, R. Crittenden, R.K. Adair, B. Musgrave, and F.T. Shirley
K_1-K_2 Mass Difference (presented by J.W. Cronin)	J.H. Christenson, J.W. Cronin, V.L. Fitch, and R. Turley
K_1^o Regeneration in Hydrogen (presented by F.R. Eisler)	F.R. Eisler, T.C. Bacon, and H.W.K. Hopkins

BEGPR

Bologna, Edinburgh, Glasgow, Pisa, RL collaboration. (W.Cameron, G.Kalmus, K.Peach, W.Venus et al.)

Mono-and Di-energetic Kzero beam and 2m HBC at CERN PS.

"PWA solutions have been found over 1480-2170 MeV….data from the pure isospin-1 channel K^0_L p–>$\Sigma^0\pi^+$ have helped to separate the I=0 and I=1 effects in the region 1530-1700 MeV."

(RL-IC NPB 119 1977).

"There is no excellent beauty that hath not some strangeness in the proportion".