

1974-1975

REVERBERATIONS OF THE OCTOBER REVOLUTION AT CERN
ADJUSTMENT OF PRIORITIES IN RELATION TO SPIGEL & STROOT
PROPOSAL ON HIGH MASS $e^+ e^-$ PAIRS

← THE 4
SACRED
PAPERS BY
KONRAD!

HEINRICH AS PS COORDINATOR HELPING WITH IMPLEMENTING
EEC AND RESEARCH BOARD DECISIONS (OCTOBER 1974-75)

JULY 87

IN THE 80's WORK ON NA31 ==> HEINRICH REPORTS
"FIRST EVIDENCE FOR DIRECT CP VIOLATION IN KAON
TO TWO-PION DECAYS" (AT 3-STANDARD DEVIATIONS)
AT CERN SEMINAR JUST BEFORE THE SYMPOSIUM ON
HIGH ENERGY PHOTON AND LEPTON INTERACTIONS IN
HAMBURG

"UNSATISFACTORY" AGREEMENT WITH FNAL

13th FEBRUARY 1990

FIRST RECORDED OUTLINE FOR CONCEPTION OF
THE "NEW EXPERIMENT" ==> NA48

1,2

11th SEPTEMBER 1990

PROPOSAL FOR A PRECISION MEASUREMENT OF EPSILON'/EPSILON
IN CP VIOLATING $K_0 \Rightarrow$ 2-PION DECAYS (P253 BERNARD PEYAUD)

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1990-1997

FROM CONCEPTION TO BIRTH AND INFANCY OF NA48
FOCUSSING ON THE NA48 E.M. CALORIMETER

4th OCTOBER 1990

FAX BY E. LORENZ (FROM PALMA!) AS SPSC RAPPORTEUR

CONTINUOUS ATTENTION BY HEINRICH TO PREVENT "MISCARRIAGE"

COMPARISON AND ==> CHANGE FROM LIXe to LKr CALORIMETER

1992

UNFORESEEN RIGHT-LEFT ASYMMETRY EFFECT.
REQUESTED ACCURACY OF ENERGY SCALE AND CONSEQUENCES ON
MECHANICAL TOLERANCES ON ELECTRODE POSITION AND STABILITY

PROBLEM SERIOUS ENOUGH TO INDUCE A COMPARATIVE STUDY OF
ALTERNATIVES

"UNCOMPROMISING" ATTITUDE BY HEINRICH,
EVEN IN FRONT OF THE POSSIBILITY OF REDUCING BY A
FACTOR OF FIVE THE COST TO CERN FOR THE
ELECTRONICS, WAS ESSENTIAL TO AVOID
ACCEPTING REDUCED PERFORMANCE AND PREVENTING A
"CONSERVATIVE REVOLUTION"

ABSOLUTE
 ANGULAR
 SCALE FOR $\theta_{\gamma\gamma}$
 AND $\theta_{\pi^+\pi^-}$
 ACCURATE TO
 $\sim 10^{-4}$

P253 PROPOSAL

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The electromagnetic calorimeter

Design performance criteria:

- multi-photon recording at $\sim 1\text{MHz}$
- excellent energy resolution $3\%/\sqrt{E}$
- good space resolution $\leq 1\text{mm}$
- event time resolution of $< 1\text{ns}$ to match rate of tagging station and to reject (potential) overlapping out of time events.

obtained with:

- tower geometry: small capacitance/cell gives high rate capability and high resolving power on nearby clusters (2cm)
- high granularity: 10^4 channels
- Use LXe in a quasi-homogeneous structure
- use initial-current read out technique to record ionization signal and timing.

$T_{\text{int}} = 80\text{ns}$ where total drift time $T_D \sim 4\mu\text{s}$:
insures that response is uniform across 98%
of the cell.

FIRST SKETCHY IDEAS FOR e.m. CALORIMETER

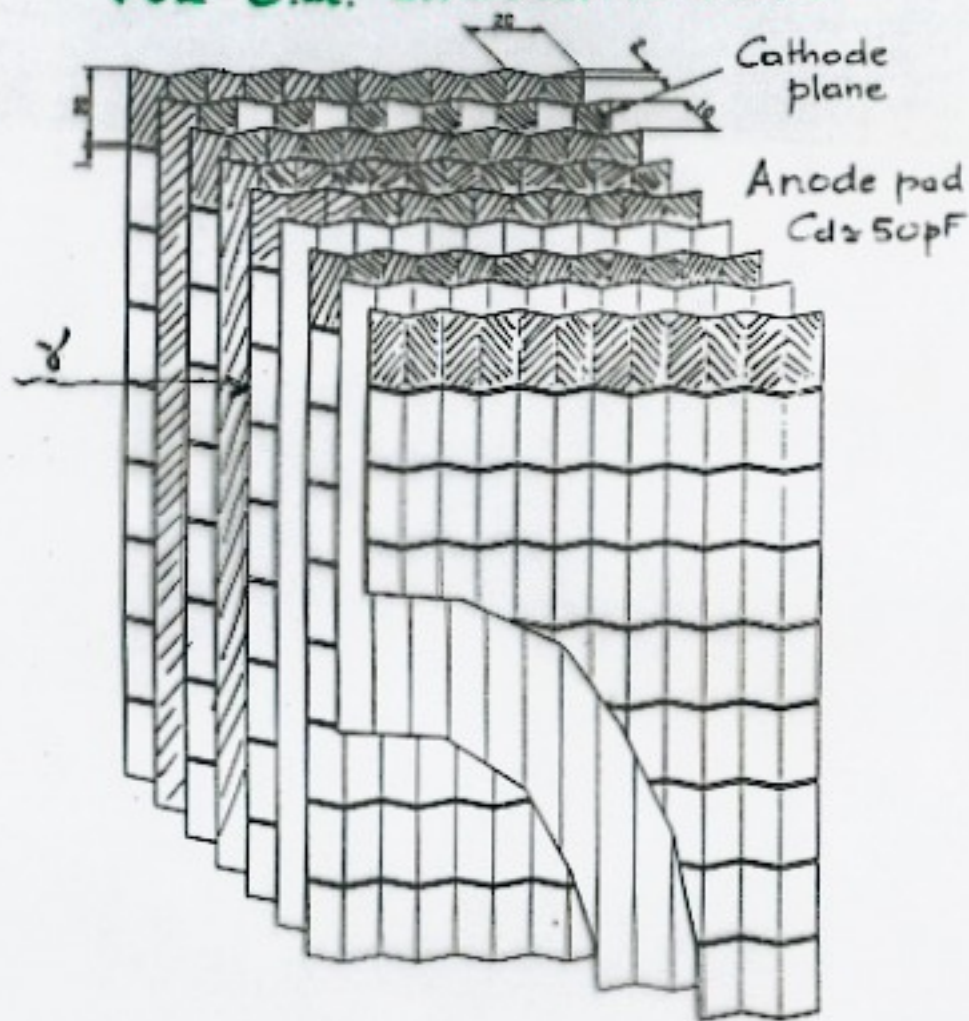


Fig. 1 Schematic structure of the input output calorimeter for particle counting from the left

POOLING IDEAS FROM ALL LABORATORIES AND MEMBERS OF THE COLLABORATION, AFTER MONTHS OF LABORIOUS WORK, WE FOUND

THE BASIC SOLUTION ==> CUT FOILS IN RIBBONS
ADD SPRINGS, + + +
+ + + + IMPLEMENT PROJECTIVITY, INVENT "MEGASWITCH" ETC.

9, 10, 11, 12

1997

NA48 HAPPY BIRTHDAY WITH FIRST PHYSICS RUN ... BUT

LAST UNFORESEEN PROBLEM ==> H.V. COUPLING CAPACITORS DISCHARGE DUE TO LIQUID KRYPTON PENETRATION

FALL 97 -
SPRING 98

REPLACE ALL H.V. CAPACITORS WITH CERRI'S HOME MADE MODEL

SINCE 23 APRIL 98



THE APPLAUSE IN THE NA48 WEEKLY MEETING, TO THANK CLAUDIO CERRI, MARKED THE BEGINNING OF THE FULL "ADULT LIFE" OF THE LKR CALORIMETER, WHICH CONTINUES, HAPPILY UNPERTURBED, TO THIS DAYS IN COLD CONDITION AND WITHOUT SIGN OF AGING, THUS ALLOWING HIGH PRECISION DATA TAKING



MAIN RESULTS

NA 48 AND THE EVOLUTION OF EPSILON' / EPSILON MEASUREMENTS

THANKS FOR YOUR CONTINUOUS AND CONTINUING CONTRIBUTION

TO NA48

AND

!! HAPPY "ADULT LIFE" HEINRICH !!

AFTER 65