

Minutes of the QQ Meeting held at CERN on 30 August 1989

1. Announcements

Fred Bird announced a detailed Luminosity meeting to be held at CERN on 8 September.

Stephen Haywood announced a meeting of the scanning team on Wednesday, 6 September.

2. SLC fits

John Harton summarized how the Mark II group performed their analysis and fits to M_Z , N_ν , Γ_Z . 1, 2 or 3 parameter fits leave M_Z unchanged. The experimental and theoretical interplay of N_ν and Γ_Z is somewhat confused at their level of statistics. We have always preferred to fit to M_Z , Γ_Z , σ_{peak} , that are uncorrelated in the limit of high statistics. It was proposed to come back to this point in the next meeting, for clarification.

3. The new Z-SHAPE program

Lluis Garrido described how the new Z-SHAPE program (basically Z-BATCH rewritten by Behrends et al.) compares with our library of programs written by Burgers. For hadrons, a pure propagator fit is perfectly sufficient with only a 7 ± 4 MeV overestimate of the width.

4. Event selection

Paul Colas presented a selection of Z's based on ECAL WIRES only, and found one new Z candidate. The contamination of the selected sample by cosmic (10 Z's out of 29 candidates) was discussed.

5. Event selection with charged tracks only

Given the good performance of TPC and ITC in the pilot run, studied the possibility to perform the analysis with charged tracks only the cuts he proposed were:

Good track: $P > 0.3 \text{ GeV}$
 $D\phi > 2 \text{ cm}$
 $Z\phi > 10 \text{ cm}$
 $|\theta| > 18.3^\circ$

4 TPC coordinates used.

Good event: $\geq 5 \text{ Good tracks}$
 $\sum P / \text{Good tracks} \geq 0.1 * E_{\text{cm}}$

This keeps $\epsilon_{\text{had}} = (97.5 \pm 0.6) \%$ of the hadronic events with a contaminator of $(0.2 \pm 0.1)\%$. The error estimate corresponds to a systematic uncertainty of $\sim 25\%$ in the charged track energy sum, and points out the importance of understanding track reconstruction at low angles.

The QCD model-dependence of this efficiency was shown to be reducible to O using the data.

6. QCD dependence of ϵ_{had}

Glen Cowan described the dominant features of lost events: small sphericity events emitted at low angles. Consequently, if one assumes that fragmentation is independent of the emission angle, constraining the sphericity distribution from the data leads to a negligible uncertainty on ϵ_{had} .

7. Trigger efficiency

Ed Blücher showed that the trigger efficiency for hadronic events can be directly measured, provided two independent triggers can be found. Monte Carlo studies show that the muon trigger (ITC + 6 double-planes in HCAL wires) and the Ecal wire trigger are physically independent. They also use independent detectors. This constitutes a strong case for having the muon trigger - or, even better, the single charged hadron (4 double planes + ITC) in both barrel and endcaps available in the next run.

8. Properties of hadronic events

Terry Sloan presented a study of track multiplicity with already some evidence for sealing violation at low x . (very, very preliminary).

9. Next meetings

We agreed to meet again on **Wednesday, 20 and 27 September at 2.00 p.m., Room 32/1-A24**. (Next run begins on 18 September as of the latest news).

Agenda (for 20 Sept.) - In particular:

1. Discussion on what to fit to the data. NY, speak, etc. Garrido, Harton, Blondel...
2. How do we know what data sets to use for cross-sections.

A.O.B. to be announced.

These minutes have ⁶ . . . annexes.

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I would like to receive the annex to the paper (ALEPH 89 - 144)