ALEPH 93-115
PHYSIC 93-96
G. Graefe
14.7.1993

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Minutes of the
D* meeting
held at CERN on
07/12/1993
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G.Graefe

Topics:

1	B** in ALEPH	B.Jacobson
2	D+ -> K-pi+pi+ with vertexing	E.Locci
3	D** -> D*pi	D.Pallin
4	Comparison with DELPHI results	P.Colas
5	some other bussiness	

present:

P. Colas	Saclay
G. Graefe	Heidelberg
B. Jacobson	CERN
E. Locci	Saclay
M. Maggi	Bari
B. Marx	Saclay
G. Musolino	Orsay
D. Pallin	Clermont-Ferrand

ad 1) Bob showed us a B** signal coming from B**0 -> B+pi- and from B***+ -> B0pi+ for which he took all his fully reconstructed B's and combined them with a further pion. He gets a peak of °24 events at a mass of about 5.6 GeV. In the wrong charge -that is "B***++" -> B+pi+ and "B**-" -> B0pi- - there is no peak at all. He fits the signal to a gaussian and the background to a root function times a linear function. The fit gives:

# of B**	= 24.1 +-5.7 events
m(B**)	= 5.600+-0.020 GeV
width(B**)	= 0.076+-0.018 GeV
# of bck. right sign	= 52.9+-8 events
# of bck. wrong sign	= 55.1+-8 events

As the width of the B** should be around 40 MeV Bob made some tests to get the origine of these effect with not much sucess. It might be that he got two different B** states but the statistics and/or resolution is not good enough to resolve these states yet.

He also showed a cos(theta*) distribution in which the background (from wrong sign) has a clear peak at -1 while the B** is flatter. Assuming that this distribution is flat (may be even °sin¬2(theta*)) he gets for the production rate = .62+-.28. The ratio for (#B** -> Bpi+-)/#B = 1/epsilon * (.55+-.14) which is rather high unless one assumes most of the B's are coming from B**.

Analysis is going on as Bob tries to understand why the signal is so broad. Suggestions to resolve this problem are welcome.

ad 2) Elisabeth presented an update of her analysis D+ -> K-pi+pi+ in which she introduced vertexing with YTOPOL. Using vertexing decreases the signal by a factor of 2 but the background by a factor of 10. So the signal over background ratio rises from .02 to .07 by

a factor of 3.5. However the significance S/sqrt(S+B) of the Signal is incraesed by only 25%.
For the future Elisabeth plans to use the full 92 statistics, add the 91 statistics and increase the Monte Carlo sample for efficiency determination.

ad 3) Dominique gave us a status report of his D** analysis using the 1991/92 data. He uses a kinematical fit to the D* to get a better D** resolution (4 MeV instead of 12 MeV without fit).
What he finds is that in 1991 the D2 has been produced while in 1992 the D1 has been preferred by physics. Combining both they nearly vanish in the background. This isn't understood yet but Paul thinks that the signal for D** seen by Yves using 1990/91 data possibly was overestimated. Looking for D** in identfied b-events (QIPBTAG, P(uds)<.1, releasing dE/dx cut on Kaon) it looks a bit better but not very significant.

ad 4) Paul presented a short comparison between the ALEPH D-Meson papers and a new D - Meson Paper from DELPHI (CERN PPE / 93-70). It is very similar to the ALEPH contributed paper to Dallas and Dominique mentioned that it seemed as if they took our paper and filled it with their values (Honi soit, qui mal y pense).
They used some slightly different cuts and made a lifetime cut (>1ps for D0, >1.5ps for D+). Their D* sample comes from 260k Z-decays (ALEPH 500k) and contains °360 D* (ALEPH °900). They got (for comparison ALEPH results in brackets):

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B(Z -> D*+- X)       = 0.171+-0.016stat+- 0.011sys
                       (0.187+-0.015    +- 0.013   )
B(Z -> D0/D0bar X)   = 0.403+-0.054    +- 0.023
                       (0.518+-0.052    +- 0.035   )
B(Z -> D+- X)        = 0.199+-0.024    +- 0.020
                       (0.251+-0.026    +- 0.025   )

<x_E(D*)>c           = 0.487+-0.015    +- 0.005
                       (0.495+-0.011    +- 0.007   )
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In the x_E their systematic doesn't include the uncertainity on the fragmentation parameter epsilon_c which gave the largest contribution to the error in the ALEPH analysis.

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P(b -> D)
---------            = 0.76 +-0.015    +- 0.06
P(c -> D)
                       (0.87 +0.15
                             -0.13  )
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To conclude: all DELPHI values are a bit lower then the ALEPH ones but in good agreement within the errors.

ad 5) The next D* meeting will be held in mid - September due to the vacations. In case of emergency present your analysis at the Inclusive Particle Production meeting.

As keeping simply updated the old analyses might become annoying, Paul asked everyone to think about new (more interesting ?) analyses that can be started in future by the D* group.

Marcello informed us that the b(D0 -> Kpi) measurement is almost ready and that he accepts to take the editorial responsibility of a paper based on this, including if possible measurements of branching ratios.