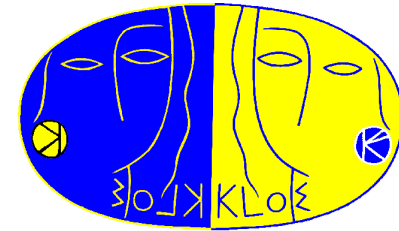


Referee considerations on analysis of $\sigma(e^+e^- \rightarrow \text{hadrons})$



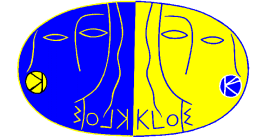
S. Miscetti and M. Moulson

KLOE General Meeting, 10 October 2002

Outline

- *Status of refereeing*
 - *Publication goals*
 - *Status of analysis*
 - *Possible scheme for paper*
-

Status of refereeing



No draft yet exists

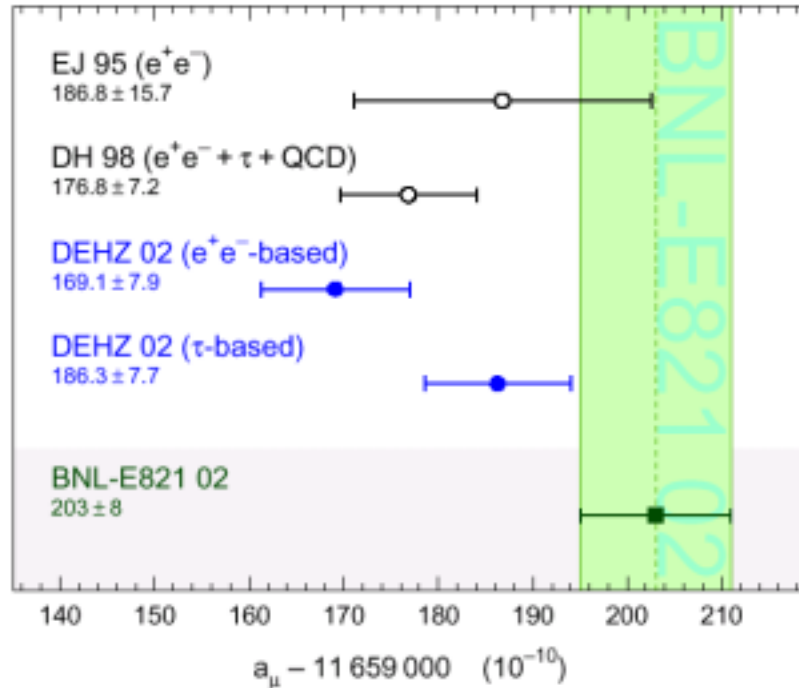
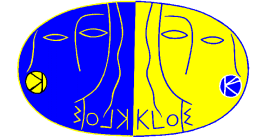
Referees have met with $\pi\pi\gamma$ group:

- 2 official meetings
- Numerous other unofficial conversations

Referees getting up to speed on theory and analysis

- Most discussion so far about conceptual issues
 - Referees have also been discussing analysis points, but have not yet systematically discussed these at length with $\pi\pi\gamma$ group members
-

Interest in $\sigma(e^+e^- \rightarrow \text{hadrons})$



Aug '02 result from E821

60% of final statistics, *PRL* Sep '02

Aug '02 results from Davier *et al.*

e^+e^- analysis

Latest CMD-2 “result”

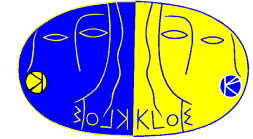
(old data, mainly new treatment of radiative corrections)

τ analysis

KLOE can clarify current phenomenological situation:

- Confirm CMD-2 results on $e^+e^- \rightarrow \text{hadrons}$
- Shed light on “discrepancy” between e^+e^- and τ results

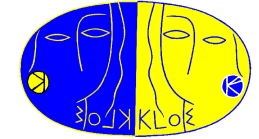
Publication timescale



Short timescale for publication important:

- Measurement interesting in context of a_μ
- Want KLOE priority for $\sigma(e^+e^- \rightarrow \text{hadrons})$ by radiative return
- KLOE commitments ($\pi\pi\gamma$ is a Group I milestone)

Referees believe it reasonable to request a draft by January



Realistic analysis goals

Small θ_γ

High statistics

FSR treatment less problematic

Long development times for
correct treatment of FSR in
generators

f_0 interference less problematic

$\pi^+\pi^-\pi^0$ background reduced

Large θ_γ

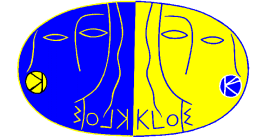
Coverage for low $M_{\pi\pi}^2$

Interesting region for a_μ which
CMD-2 data do not cover

Can detect γ to reduce $\pi^+\pi^-\pi^0$
background

**Referees and $\pi\pi\gamma$ group members agree that it is best to focus on
small- θ_γ analysis for purposes of a first paper**

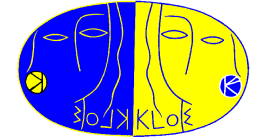
Status of analysis



Referees just getting started on comprehensive review of experimental aspects

Various analysis items being studied, much work in progress:

Trigger/veto efficiency	M. Incagli
Track/vertex efficiency	M. Incagli
FILFO efficiency	S. Muller, S. DiFalco
Likelihood	B. Valeriani
Track mass resolution	B. Valeriani, F. Nguyen
Background studies	B. Valeriani, A. Denig
Generators	A. Denig
Luminosity systematics	A. Denig
Fit to $F_\pi ^2$	G. Venanzoni, F. Nguyen



Progress towards a draft

Before writing a draft, $\pi\pi\gamma$ group plan is to produce:

- a memo detailing each analysis item
- a general memo describing entire analysis

Clearly several months of work related to documentation

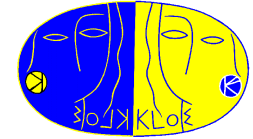
Referees' observation:

Status of individual analysis items is good, but efforts towards producing a paper not yet focused

Referees strongly recommend a shift in emphasis:

- *Write draft of small-angle paper as soon as possible*
 - Scrap individual memos
 - Create any necessary supporting documentation on the fly
-

Ingredients for paper

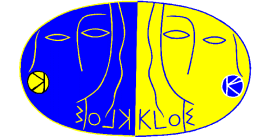


KLOE observable most interesting to phenomenological community is $d\sigma(e^+e^- \rightarrow \pi^+\pi^-\gamma)/dM_{\pi\pi}^2$

- Centerpiece of paper, with data in tabular form
- Phenomenologists can obtain $d\sigma(e^+e^- \rightarrow \pi^+\pi^-)/dM_{\pi\pi}^2$ and δa_μ by their own means
- Requires deconvolution of experimental response

Fit to $|F_\pi|^2$ and/or derivation of $d\sigma(e^+e^- \rightarrow \pi^+\pi^-)/dM_{\pi\pi}^2$ of secondary importance

- Will appear in paper as discussion
 - Useful in analysis for tuning MC and extracting response function
-



Conclusions

Referees are meeting with group members:

Getting up to speed on theory

Getting started on comprehensive review of experimental aspects

Need short timescale for publication:

Intrinsic interest in measurement in context of a_μ

KLOE priority for measurement of radiative return

KLOE commitments (milestones, etc.)

Propose January timescale for draft of a paper

Small-angle paper best bet on this timescale

Highest priority for group is to put this draft together
