

Φ(1860)

$$I(J^P) = \frac{3}{2}(??) \quad \text{Status: } *$$

OMITTED FROM SUMMARY TABLE

ALT 04 with 1640 Ξ^- candidates in pp reaction at $\sqrt{s} = 17.2$ GeV sees peaks in the $\Xi^- \pi^-$ and $\Xi^- \pi^+$ mass spectra reported below. The minimum quark content would be $ssd d\bar{u}$.

However:

- ADAMOVICH 04 with 676k Ξ^- candidates in Σ^- -nucleus reactions at a mean Σ^- momentum of 340 GeV/c finds no evidence for the peak.
- Neither does SCHAEEL 04 in a search in 3.5M Z decays.
- FISCHER 04 claims the ALT 04 result is inconsistent with the 40-year accumulation of $\Xi\pi$ spectra, and also with the absence of any hint of the $\Theta(1540)^+$ in their experiment.
- ABT 04A finds no evidence in p -nucleus reactions at mid-rapidity and $\sqrt{s}=41.6$ GeV.
- AIRAPETIAN 05 finds no evidence in quasi-real photoproduction of $\Xi^- \pi^\pm$ with 27.6-GeV e^+ incident on deuterium.
- CHEKANOV 05 finds no evidence in deep-inelastic ep scattering at c.m. energies of 300 and 318 GeV.

Φ(1860) MASS

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
1862 ± 2	36	¹ ALT	04 NA49	$pp, \sqrt{s} = 17.2$ GeV

Φ(1860) WIDTH

VALUE (MeV)	CL%	DOCUMENT ID	TECN	COMMENT
<18	90	¹ ALT	04 NA49	$pp, \sqrt{s} = 17.2$ GeV

¹ ALT 04 estimates a peak of 38 $\Xi^- \pi^-$ events above a background of 43 events and claims a significance of 4.2 standard deviations. Combining $\Xi^- \pi^-$, $\Xi^- \pi^+$, $\Xi^+ \pi^+$, and $\Xi^+ \pi^-$ events, ALT 04 estimates a peak of 69 over a background of 75, for 5.8 σ . However, when the number of bins searched in is taken into account, the significance falls to 4.2 σ .

Φ(1860) REFERENCES

AIRAPETIAN 05	PR D71 032004	A. Airapetian <i>et al.</i>	(HERA HERMES Collab.)
CHEKANOV 05	PL B610 212	S. Chekanov <i>et al.</i>	(HERA ZEUS Collab.)
ABT 04A	PRL 93 212003	I. Abt <i>et al.</i>	(HERA B Collab.)
ADAMOVICH 04	PR C70 022201R	M.I. Adamovich <i>et al.</i>	(CERN WA89 Collab.)
ALT 04	PRL 92 042003	C. Alt <i>et al.</i>	(CERN NA49 Collab.)
FISCHER 04	EPJ C37 133	H.G. Fischer, S. Wenig	(CERN)
SCHAEEL 04	PL B599 1	S. Schael <i>et al.</i>	(ALEPH Collab.)