Illustrative Key to the Particle Listings

Name of particle. "Old" name used before 1986 renaming scheme also given if different. See the section "Naming Scheme for Hadrons" for details.

$a_0(1200)$ $\qquad I^G(J^{PC}) = 1^-(0^{++})$

Particle quantum numbers (where known).

OMITTED FROM SUMMARY TABLE
Evidence not compelling, may be a kinematic effect.

Indicates particle omitted from Particle Physics Summary Table, implying particle's existence is not confirmed.

Quantity tabulated below.

$a_0(1200)$ MASS

Top line gives our best value (and error) of quantity tabulated here, based on weighted average of measurements used. Could also be from fit, best limit, estimate, or other evaluation. See next page for details.

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	CHG	COMMENT
1206± 7 OUR AVERAGE					
1210± 8±9	3000	FENNER 87	MMS	−	3.5 $\pi^- p$
1198±10		PIERCE 83	ASPK	+	2.1 $K^- p$
1216±11±9	1500	[1] MERRILL 81	HBC	0	3.2 $K^- p$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1192±16	200	LYNCH 81	HBC	±	2.7 $\pi^- p$

General comments on particle.

"Document id" for this result; full reference given below.

Footnote number linking measurement to text of footnote.

[1] Systematic error was added quadratically by us in our 1986 edition.

Measurement technique. (See abbreviations on next page.)

$a_0(1200)$ WIDTH

Number of events *above background*.

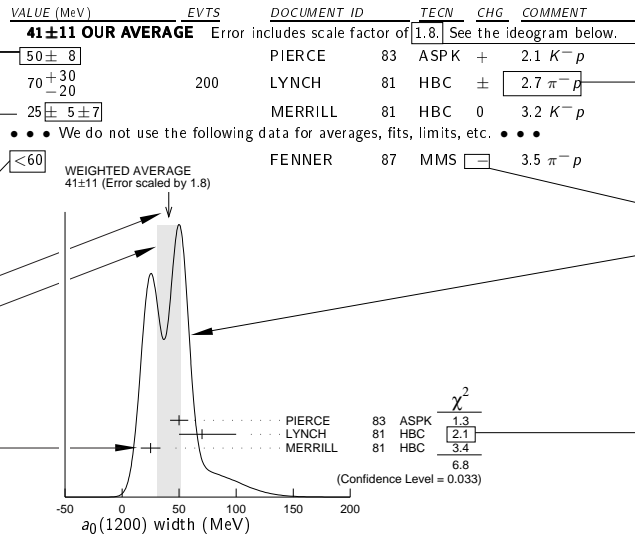Measured value used in averages, fits, limits, etc.

Error in measured value (often statistical only; followed by systematic if separately known; the two are combined in quadrature for averaging and fitting.)

Measured value *not used* in averages, fits, limits, etc. See the Introductory Text for explanations.

Arrow points to weighted average.

Shaded pattern extends $\pm 1\sigma$ (scaled by "scale factor" S) from weighted average.

Value and error for each experiment.

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	CHG	COMMENT
41±11 OUR AVERAGE Error includes scale factor of 1.8. See the ideogram below.					
50± 8		PIERCE 83	ASPK	+	2.1 $K^- p$
70$^{+30}_{-20}$	200	LYNCH 81	HBC	±	2.7 $\pi^- p$
25 ± 5±7		MERRILL 81	HBC	0	3.2 $K^- p$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<60		FENNER 87	MMS	−	3.5 $\pi^- p$

Scale factor > 1 indicates possibly inconsistent data.

Reaction producing particle, or general comments.

"Change bar" indicates result added or changed since previous edition.

Charge(s) of particle(s) detected.

WEIGHTED AVERAGE
41±11 (Error scaled by 1.8)

			χ^2
PIERCE	83	ASPK	1.3
LYNCH	81	HBC	2.1
MERRILL	81	HBC	3.4
			6.8

(Confidence Level = 0.033)

$a_0(1200)$ width (MeV)

Ideogram to display possibly inconsistent data. Curve is sum of Gaussians, one for each experiment (area of Gaussian = 1/error; width of Gaussian = ±error). See Introductory Text for discussion.

Contribution of experiment to χ^2 (if no entry present, experiment not used in calculating χ^2 or scale factor because of very large error).

$a_0(1200)$ DECAY MODES

Partial decay mode (labeled by Γ_i).

	Mode	Fraction (Γ_i/Γ)	Scale factor/ Confidence level
Γ_1	3π	(65.2±1.3) %	S=1.7
Γ_2	$K\bar{K}$	(34.8±1.3) %	S=1.7
Γ_3	$\eta\pi^{\pm}$	< 5 × 10^{-4}	CL=95%

Our best value for branching fraction as determined from data averaging, fitting, evaluating, limit selection, etc. This list is basically a compact summary of results in the Branching Ratio section below.

$a_0(1200)$ BRANCHING RATIOS

Branching ratio.

Our best value (and error) of quantity tabulated, as determined from constrained fit (using *all significant* measured branching ratios for this particle).

Weighted average of measurements of this ratio only.

Footnote (referring to LYNCH 81).

$\Gamma(3\pi)/\Gamma_{total}$ $\qquad\qquad \Gamma_1/\Gamma$

VALUE	DOCUMENT ID	TECN	CHG	COMMENT
0.652±0.013 OUR FIT Error includes scale factor of 1.7.				
0.643±0.010 OUR AVERAGE				
0.64 ±0.01	PIERCE 83	ASPK	+	2.1 $K^- p$
0.74 ±0.06	MERRILL 81	HBC	0	3.2 $K^- p$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.48 ±0.15	[2] LYNCH 81	HBC	±	2.7 $\pi^- p$

[2] Data has questionable background subtraction.

$\Gamma(K\bar{K})/\Gamma_{total}$ $\qquad\qquad \Gamma_2/\Gamma$

VALUE	DOCUMENT ID	TECN	CHG	COMMENT
0.348±0.013 OUR FIT Error includes scale factor of 1.7.				
0.35 ±0.05	PIERCE 83	ASPK	+	2.1 $K^- p$

Branching ratio in terms of partial decay mode(s) Γ_i above.

$\Gamma(K\bar{K})/\Gamma(3\pi)$ $\qquad\qquad \Gamma_2/\Gamma_1$

VALUE	DOCUMENT ID	TECN	CHG	COMMENT
0.535±0.030 OUR FIT Error includes scale factor of 1.7.				
0.50 ±0.03	MERRILL 81	HBC	0	3.2 $K^- p$

Confidence level for measured upper limit.

$\Gamma(\eta(\text{neutral decay})\pi^{\pm})/\Gamma_{total}$ $\qquad\qquad 0.71\Gamma_3/\Gamma$

VALUE (units 10^{-4})	CL%	DOCUMENT ID	TECN	CHG	COMMENT
<3.5	95	PIERCE 83	ASPK	+	2.1 $K^- p$

$a_0(1200)$ REFERENCES

References, ordered inversely by year, then author.

"Document id" used on data entries above.

Journal, report, preprint, etc. (See abbreviations on next page.)

FENNER	87	PRL 55 14	H. Fenner *et al.*	(SLAC)
PIERCE	83	PL 123B 230	J.H. Pierce	(FNAL) JP
LYNCH	81	PR D24 610	G.R. Lynch *et al.*	(CLEO Collab.)
MERRILL	81	PRL 47 143	D.W. Merrill *et al.*	(SACL, CERN)

Partial list of author(s) in addition to first author.

Quantum number determinations in this reference.

Institution(s) of author(s). (See abbreviations on next page.)