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.

$a_0(1200)$

$I^G(J^{PC}) = 1^-(0^{++})$ — Particle quantum numbers (where known).

OMITTED FROM SUMMARY TABLE — Indicates particle omitted from Particle Physics Summary Table, implying particle's existence is not confirmed.

Evidence not compelling, may be a kinematic effect. — General comments on particle.

Quantity tabulated below.

$a_0(1200)$ MASS

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 $\pi^- p$

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

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.

Footnote number linking measurement to text of footnote.

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

Measurement technique. (See abbreviations on next page.)

$a_0(1200)$ WIDTH

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 $\pi^- p$

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.)

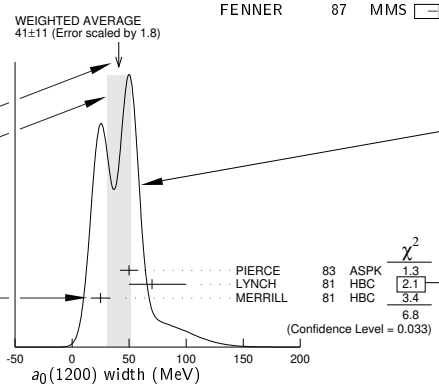
Measured value *not used* in averages, fits, limits, etc. See the Introductory Text for explanations.

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.



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.

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.

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

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

Partial decay mode (labeled by Γ_i).

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

$\Gamma(3\pi)/\Gamma_{total}$ — Γ_1/Γ

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.

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).

$\Gamma(K\overline{K})/\Gamma_{total}$ — Γ_2/Γ

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 $K^- p$

$\Gamma(K\overline{K})/\Gamma(3\pi)$ — Γ_2/Γ_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 $K^- p$

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

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

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

Confidence level for measured upper limit.

$a_0(1200)$ REFERENCES

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

References, ordered inversely by year, then author.

"Document id" used on data entries above.

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

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.)