$K_0^*(800)$ or κ

$I(J^P) = \frac{1}{2}(0^+)$

OMITTED FROM SUMMARY TABLE

Needs confirmation.

$K_0^*(800)$ MASS

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
672±40 OUR AVERAGE Error includes scale factor of 2.9.					
$841 \pm 30^{+81}_{-73}$	25k	[1,2] ABLIKIM	06C	BES2	$J/\psi \to \overline{K}^*(892)^0 K^+ \pi^-$
658 ± 13		[3] DESCOTES-G..	06	RVUE	$\pi K \to \pi K$
$797 \pm 19 \pm 43$	15090	[4,5] AITALA	02	E791	$D^+ \to K^- \pi^+ \pi^+$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$856 \pm 17 \pm 13$	54k	[6] LINK	07B	FOCS	$D^+ \to K^- \pi^+ \pi^+$
750^{+30}_{-55}		[7] BUGG	06	RVUE	
855 ± 15	627 ± 30	[8] CAWLFIELD	06A	CLEO	$D^0 \to K^+ K^- \pi^0$
694 ± 53		[9,10] ZHOU	06	RVUE	$K p \to K^- \pi^+ n$
753 ± 52		[11] PELAEZ	04A	RVUE	$K\pi \to K\pi$
594 ± 79		[10] ZHENG	04	RVUE	$K^- p \to K^- \pi^+ n$
722 ± 60		[12] BUGG	03	RVUE	11 $K^- p \to K^- \pi^+ n$
905^{+65}_{-30}		[13] ISHIDA	97B	RVUE	11 $K^- p \to K^- \pi^+ n$

[1] S-matrix pole. GUO 06 in a chiral unitary approach report a mass of 757 ± 33 MeV and a width of 558 ± 82 MeV.

[2] A fit in the $K_0^*(800) + K^*(892) + K^*(1410)$ model with mass and width of the $K_0^*(800)$ from ABLIKIM 06C well describes the left slope of the $K_S^0 \pi^-$ invariant mass spectrum in $\tau^- \to K_S^0 \pi^- \nu_\tau$ decay studied by EPIFANOV 07.

[3] S-matrix pole. Using Roy-Steiner equations (ROY 71) as well as unitarity, analyticity and crossing symmetry constraints.

[4] Not seen by KOPP 01 using 7070 events of $D^0 \to K^- \pi^+ \pi^0$. LINK 02E and LINK 05I show clear evidence for a constant non-resonant scalar amplitude rather than $K_0^*(800)$ in their high statistics analysis of $D^+ \to K^- \pi^+ \mu^+ \nu_\mu$.

[5] AUBERT 07T does not find evidence for the charged $K_0^*(800)$ using 11k events of $D^0 \to K^- K^+ \pi^0$.

[6] A Breit-Wigner mass and width.

[7] S-matrix pole. Reanalysis of ASTON 88, AITALA 02, and ABLIKIM 06C using for the κ an s-dependent width with an Adler zero near threshold.

[8] Breit-Wigner parameters. A significant S-wave can be also modeled as a non-resonant contribution.

[9] S-matrix pole.

[10] Using ASTON 88.

[11] T-matrix pole. Reanalysis of data from LINGLIN 73, ESTABROOKS 78, and ASTON 88 in the unitarized ChPT model.

[12] T-matrix pole. Reanalysis of ASTON 88 data.

[13] Reanalysis of ASTON 88 using interfering Breit-Wigner amplitudes.

$K_0^*(800)$ WIDTH

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
550± 34 OUR AVERAGE		Error includes scale factor of 1.5.			
$618 \pm 90^{+96}_{-144}$	25k	[14,15] ABLIKIM	06C	BES2	$J/\psi \to \overline{K}^*(892)^0 K^+ \pi^-$
557± 24		[16] DESCOTES-G..06		RVUE	$\pi K \to \pi K$
410± 43± 87	15090	[17,18] AITALA	02	E791	$D^+ \to K^- \pi^+ \pi^+$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
464± 28± 22	54k	[19] LINK	07B	FOCS	$D^+ \to K^- \pi^+ \pi^+$
684±120		[20] BUGG	06	RVUE	
251± 48	627 ± 30	[21] CAWLFIELD	06A	CLEO	$D^0 \to K^+ K^- \pi^0$
606± 59		[14,22] ZHOU	06	RVUE	$K p \to K^- \pi^+ n$
470± 66		[23] PELAEZ	04A	RVUE	$K\pi \to K\pi$
724±332		[22] ZHENG	04	RVUE	$K^- p \to K^- \pi^+ n$
772±100		[24] BUGG	03	RVUE	11 $K^- p \to K^- \pi^+ n$
545^{+235}_{-110}		[25] ISHIDA	97B	RVUE	11 $K^- p \to K^- \pi^+ n$

[14] S-matrix pole.

[15] A fit in the $K_0^*(800) + K^*(892) + K^*(1410)$ model with mass and width of the $K_0^*(800)$ from ABLIKIM 06C well describes the left slope of the $K_S^0 \pi^-$ invariant mass spectrum in $\tau^- \to K_S^0 \pi^- \nu_\tau$ decay studied by EPIFANOV 07.

[16] S-matrix pole. Using Roy-Steiner equations (ROY 71) as well as unitarity, analyticity and crossing symmetry constraints.

[17] Not seen by KOPP 01 using 7070 events of $D^0 \to K^- \pi^+ \pi^0$. LINK 02E and LINK 05I show clear evidence for a constant non-resonant scalar amplitude rather than $K_0^*(800)$ in their high statistics analysis of $D^+ \to K^- \pi^+ \mu^+ \nu_\mu$.

[18] AUBERT 07T does not find evidence for the charged $K_0^*(800)$ using 11k events of $D^0 \to K^- K^+ \pi^0$.

[19] A Breit-Wigner mass and width.

[20] S-matrix pole. Reanalysis of ASTON 88, AITALA 02, and ABLIKIM 06C using for the κ an s-dependent width with an Adler zero near threshold.

[21] Statistical error only. A fit to the Dalitz plot including the $K_0^*(800)^\pm$, $K^*(892)^\pm$, and ϕ resonances modeled as Breit-Wigners. A significant S-wave can be also modeled as a non-resonant contribution.

[22] Using ASTON 88.

[23] T-matrix pole. Reanalysis of data from LINGLIN 73, ESTABROOKS 78, and ASTON 88 in the unitarized ChPT model.

[24] T-matrix pole. Reanalysis of ASTON 88 data.

[25] Reanalysis of ASTON 88 using interfering Breit-Wigner amplitudes.

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EPIFANOV	07	PL B654 65	D. Epifanov *et al.*	(BELLE Collab.)
LINK	07B	PL B653 1	J.M. Link *et al.*	(FNAL FOCUS Collab.)
ABLIKIM	06C	PL B633 681	M. Ablikim *et al.*	(BES Collab.)
BUGG	06	PL B632 471	D.V. Bugg	(LOQM)
CAWLFIELD	06A	PR D74 031108R	C. Cawlfield *et al.*	(CLEO Collab.)
DESCOTES-G...	06	EPJ C48 553	S. Descotes-Genon, B. Moussallam	
GUO	06	NP A773 78	F.K. Guo *et al.*	
ZHOU	06	NP A775 212	Z.Y. Zhou, H.Q. Zheng	
LINK	05I	PL B621 72	J.M. Link *et al.*	(FNAL FOCUS Collab.)

PELAEZ	04A	MPL A19 2879	J.R. Pelaez	
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