



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

OMITTED FROM SUMMARY TABLE

Needs confirmation.

 **$K_0^*(800)$  MASS**

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

<sup>1</sup> S-matrix pole. GUO 06 in a chiral unitary approach report a mass of  $757 \pm 33$  MeV and a width of  $558 \pm 82$  MeV.

<sup>2</sup> 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  $\tau^- \rightarrow K_S^0 \pi^- \nu_\tau$  decay studied by EPIFANOV 07.

<sup>3</sup> S-matrix pole. Using Roy-Steiner equations (ROY 71) as well as unitarity, analyticity and crossing symmetry constraints.

<sup>4</sup> Not seen by KOPP 01 using 7070 events of  $D^0 \rightarrow K^- \pi^+ \pi^0$ . 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  $D^+ \rightarrow K^- \pi^+ \mu^+ \nu_\mu$ .

<sup>5</sup> AUBERT 07T does not find evidence for the charged  $K_0^*(800)$  using 11k events of  $D^0 \rightarrow K^- K^+ \pi^0$ .

<sup>6</sup> A Breit-Wigner mass and width.

<sup>7</sup> S-matrix pole. Reanalysis of ASTON 88, AITALA 02, and ABLIKIM 06C using for the  $\kappa$  an  $s$ -dependent width with an Adler zero near threshold.

<sup>8</sup> Breit-Wigner parameters. A significant  $S$ -wave can be also modeled as a non-resonant contribution.

<sup>9</sup> S-matrix pole.

<sup>10</sup> Using ASTON 88.

<sup>11</sup> T-matrix pole. Reanalysis of data from LINGLIN 73, ESTABROOKS 78, and ASTON 88 in the unitarized ChPT model.

<sup>12</sup> T-matrix pole. Reanalysis of ASTON 88 data.

<sup>13</sup> Reanalysis of ASTON 88 using interfering Breit-Wigner amplitudes.

**$K_0^*(800)$  WIDTH**

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

<sup>14</sup> S-matrix pole.

<sup>15</sup> 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  $\tau^- \rightarrow K_S^0 \pi^- \nu_\tau$  decay studied by EPIFANOV 07.

<sup>16</sup> S-matrix pole. Using Roy-Steiner equations (ROY 71) as well as unitarity, analyticity and crossing symmetry constraints.

<sup>17</sup> Not seen by KOPP 01 using 7070 events of  $D^0 \rightarrow K^- \pi^+ \pi^0$ . 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  $D^+ \rightarrow K^- \pi^+ \mu^+ \nu_\mu$ .

<sup>18</sup> AUBERT 07T does not find evidence for the charged  $K_0^*(800)$  using 11k events of  $D^0 \rightarrow K^- K^+ \pi^0$ .

<sup>19</sup> A Breit-Wigner mass and width.

<sup>20</sup> S-matrix pole. Reanalysis of ASTON 88, AITALA 02, and ABLIKIM 06C using for the  $\kappa$  an  $s$ -dependent width with an Adler zero near threshold.

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

<sup>22</sup> Using ASTON 88.

<sup>23</sup> T-matrix pole. Reanalysis of data from LINGLIN 73, ESTABROOKS 78, and ASTON 88 in the unitarized ChPT model.

<sup>24</sup> T-matrix pole. Reanalysis of ASTON 88 data.

<sup>25</sup> Reanalysis of ASTON 88 using interfering Breit-Wigner amplitudes.

 **$K_0^*(800)$  REFERENCES**

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

PELAEZ	04A	MPL A19 2879	J.R. Pelaez	
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BUGG	03	PL B572 1	D.V. Bugg	
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