

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

D^{\pm} MASS

The fit includes D^{\pm} , D^0 , D_s^{\pm} , $D^{*\pm}$, D^{*0} , and $D_s^{*\pm}$ mass and mass difference measurements.

VALUE	(MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
1869.3	$B\pm~0.5~OUR~FIT$	Error incl	udes scale factor o	of 1.:	1.	
1869.4	\pm 0.5 OUR AVE	RAGE				
1870.0	$0\pm$ 0.5 \pm 1.0	317	BARLAG	90 C	ACCM	π^- Cu 230 GeV
1863	± 4		DERRICK	84	HRS	e ⁺ e ⁻ 29 GeV
1869.4	+± 0.6		¹ TRILLING	81	RVUE	e^+e^- 3.77 GeV
• • •	We do not use the	e following	data for averages	, fits,	, limits,	etc. ● ● ●
1875	± 10	9	ADAMOVICH	87	EMUL	Photoproduction
1860	± 16	6	ADAMOVICH	84	EMUL	Photoproduction
1868.4	+± 0.5		¹ SCHINDLER	81	MRK2	e ⁺ e ⁻ 3.77 GeV
1874	\pm 5		GOLDHABER	77	MRK1	D^0 , D^+ recoil spectra
1868.3	B± 0.9		¹ PERUZZI	77	MRK1	e^+e^- 3.77 GeV
1874	± 11		PICCOLO	77	MRK1	e^+e^- 4.03, 4.41 GeV
1876	± 15	50	PERUZZI	76	MRK1	$\kappa^{\mp} \pi^{\pm} \pi^{\pm}$
¹ PE	ERUZZI 77 and S	CHINDLER	81 errors do not	: incl	ude the	0.13% uncertainty in the

absolute SPEAR energy calibration. TRILLING 81 uses the high precision $J/\psi(1S)$ and $\psi(2S)$ measurements of ZHOLENTZ 80 to determine this uncertainty and combines the PERUZZI 77 and SCHINDLER 81 results to obtain the value quoted.

D^{\pm} MEAN LIFE

Measurements with an error $>0.1\times10^{-12}$ s are omitted from the average, and those with an error $>0.2\times10^{-12}$ s have been omitted from the Listings.

VALUE (10^{-12} s)	EVTS	DOCUMENT ID	TECN	COMMENT
1.057 ± 0.015 OUR AV	ERAGE			
$1.048\!\pm\!0.015\!\pm\!0.011$	9k	FRABETTI	94D E687	$D^+ \rightarrow K^- \pi^+ \pi^+$
$1.075\!\pm\!0.040\!\pm\!0.018$	2455	FRABETTI	91 E687	γ Be, $D^+ ightarrow$
				$K^-\pi^+\pi^+$
$1.03\ \pm 0.08\ \pm 0.06$	200	ALVAREZ	90 NA14	$\gamma, D^+ \rightarrow K^- \pi^+ \pi^+$
$1.05 \begin{array}{c} +0.077 \\ -0.072 \end{array}$	317	² BARLAG	90c ACCM	π^- Cu 230 GeV
$1.05 \ \pm 0.08 \ \pm 0.07$	363	ALBRECHT	881 ARG	e ⁺ e ⁻ 10 GeV
$1.090\!\pm\!0.030\!\pm\!0.025$	2992	RAAB	88 E691	Photoproduction

 \bullet \bullet \bullet We do not use the following data for averages, fits, limits, etc. \bullet \bullet

$1.12 \ \begin{array}{c} +0.14 \\ -0.11 \end{array}$	149	AGUILAR	87D HYBR	$\pi^- p$ and pp
$1.09 \begin{array}{c} +0.19 \\ -0.15 \end{array}$	59	BARLAG	87B ACCM	K^- and π^- 200 GeV
$1.14 \ \pm 0.16 \ \pm 0.07$	247	CSORNA	87 CLEO	e^+e^- 10 GeV
$1.09 \ \pm 0.14$	74	³ PALKA	87b SILI	π Be 200 GeV
$\begin{array}{ccc} 0.86 \ \pm 0.13 \ \begin{array}{c} + 0.07 \\ - 0.03 \end{array}$	48	ABE	86 HYBR	γp 20 GeV

² BARLAG 90C estimates the systematic error to be negligible. ³ PALKA 87B observes this in $D^+ \rightarrow \overline{K}^*(892) e\nu$.

D⁺ DECAY MODES

 D^- modes are charge conjugates of the modes below.

	Mode	Fraction (Γ_i/Γ)	Scale factor/ Confidence level
	Inclusiv	e modes	
Γ_1	e^+ anything	(17.2 ± 1.9) %	
Γ ₂	\underline{K}^- anything	(24.2 \pm 2.8) %	S=1.4
Γ3	K^0 anything + K^0 anything	$(59 \pm 7) \%$	
Г4	K^+ anything	(5.8 ±1.4)%	
I ₅ г	η anything	[a] < 13 %	CL=90%
I ₆	μ ' anything		
	Leptonic and se	mileptonic modes	
Γ ₇	$\mu^+ u_{\mu}$	< 7.2 × 1	10^{-4} CL=90%
Г ₈	$\overline{K}^{0}\ell^{+}\nu_{\ell}$	$[b]$ (6.8 \pm 0.8) %	
Г9	$K^0 e^+ \nu_e$	(6.7 ± 0.9)%	
Γ ₁₀	$\overline{\kappa}{}^{0}\mu^{+} u_{\mu}$	(7.0 $\substack{+3.0\\-2.0}$) %	
Γ_{11}	$K^-\pi^+e^+\nu_e$	(4.1 $\substack{+0.9\\-0.7}$) %	
Γ ₁₂	$ \begin{array}{rcl} \overline{K}^{*}(892)^{0} e^{+} \nu_{e} \\ \times & B(\overline{K}^{*0} \rightarrow & K^{-} \pi^{+}) \end{array} \end{array} $	$(3.2 \pm 0.33)\%$	
Γ_{13}	$K^-\pi^+e^+\nu_e$ nonresonant	< 7 × 1	10^{-3} CL=90%
Γ_{14}	$K^-\pi^+\mu^+\nu_\mu$	(3.2 ±0.4)%	S=1.1
	In the fit as $\frac{2}{3}\Gamma_{26} + \Gamma_{16}$, where	$\frac{2}{3}\Gamma_{26}=\Gamma_{15}.$	
Γ ₁₅	$K^{*}(892)^{0} \mu^{+} \nu_{\mu}$	(2.9 \pm 0.4)%	
	$\times \ B(\overline{K}^{*0} \rightarrow \ K^{-}\pi^{+})$		

Fractions of some of the following modes with resonances have already appeared above as submodes of particular charged-particle modes.

I 24	$K^{*}(892)^{\circ}\ell^{+}\nu_{\ell}$	[b] (4.7 ±0.4) %	6
Γ ₂₅	$\overline{K}^{*}(892)^{0} e^{+} \nu_{e}$	(4.8 ± 0.5) %	6
Г ₂₆	$\overline{\textit{K}}^{*}$ (892) $^{0}\mu^{+} u_{\mu}$	(4.4 ± 0.6) %	√₀ S=1.1
Γ ₂₇	$\rho^0 e^+ \nu_e$	$(2.2 \pm 0.8) >$	< 10 ⁻³
Г ₂₈	$ ho^{0}\mu^{+} u_{\mu}$	$(2.7 \pm 0.7) >$	< 10 ⁻³
Г ₂₉	$\phi e^+ \nu_e$	< 2.09 %	√₀ CL=90%
Г ₃₀	$\phi \mu^+ \nu_\mu$	< 3.72 %	ν CL=90%
Г ₃₁	$\eta \ell^+ \nu_\ell$	< 5 >	$< 10^{-3}$ CL=90%
Г ₃₂	η^{\prime} (958) $\mu^+ u_{\mu}$	< 9 >	$< 10^{-3}$ CL=90%

Hadronic modes with a \overline{K} or $\overline{K}\overline{K}\overline{K}$						
Г ₃₃	$\overline{K}{}^{0}\pi^{+}$	(2.89±0.26) % S	S=1.1			
Г ₃₄	$K^-\pi^+\pi^+$ [d]	'] (9.0 \pm 0.6) %				
Г ₃₅	$\overline{K}^{*}(892)^{0}\pi^{+}$	$(1.27\pm0.13)\%$				
	$\times B(\overline{K}^{*0} \to K^{-}\pi^{+})$					
Г ₃₆	$\overline{K}_{0}^{*}(1430)^{0}\pi^{+}$	(2.3 ± 0.3) %				
	$\times \ B(\overline{K}_0^*(1430)^0 \rightarrow \ K^- \pi^+)$					
Γ ₃₇	$\overline{K}^*(1680)^{\check{0}}\pi^+$	(3.7 ± 0.8) $ imes 10^{-3}$				
0.	\times B($\vec{K}^*(1680)^0 \rightarrow K^-\pi^+)$					
Г ₃₈	$\mathcal{K}^{-}\pi^{+}\pi^{+}$ nonresonant	(8.5 \pm 0.8)%				
Γ ₃₉	$\overline{K}{}^{0}\pi^{+}\pi^{0}$	/] (9.7 ±3.0)%	S=1.1			
Γ ₄₀	$\overline{K}{}^{0} ho^{+}$	(6.6 ± 2.5)%				
Γ_{41}	$\overline{K}^*(892)^0 \pi^+$	(6.3 ± 0.4) $ imes 10^{-3}$				
	$ imes {\sf B}(\overline{K}^{*0} o \ \overline{K}^0 \pi^0)$					
Γ ₄₂	$\overline{K}{}^{0}\pi^{+}\pi^{0}$ nonresonant	(1.3 \pm 1.1)%				
Γ ₄₃	$K^{-}\pi^{+}\pi^{+}\pi^{0} \qquad [d]$	'] (6.4 ± 1.1) %				
Γ ₄₄	$\overline{K}^*(892)^0 \rho^+$ total	(1.4 ± 0.9)%				
	$\times B(K^{*0} \to K^{-}\pi^{+})$					
Г ₄₅	$K_1(1400)^0 \pi^+$	(2.2 ± 0.6) %				
	$\times B(\mathcal{K}_1(1400)^0 \to \mathcal{K}^- \pi^+ \pi^0)$					
Г ₄₆	$\mathcal{K}^- ho^+ \pi^+$ total	(3.1 \pm 1.1) %				
Г ₄₇	$\mathcal{K}^- ho^+\pi^+$ 3-body	(1.1 ± 0.4)%				

Fractions of some of the following modes with resonances have already appeared above as submodes of particular charged-particle modes.

Г ₇₀ Г ₇₁ Г ₇₂	$\frac{\overline{K}^{0} \rho^{+}}{\overline{K}^{0} a_{1}(1260)^{+}} \frac{\overline{K}^{0} a_{2}(1320)^{+}}{\overline{K}^{0} a_{2}(1320)^{+}}$	$(6.6 \pm 2.5)\%$ $(8.0 \pm 1.7)\%$ $< 3 \times 10^{-3}$	CI —90%
Γ ₇₃ Γ ₇₄	$\frac{\overline{K}^{*}}{\overline{K}^{*}}(892)^{0}\pi^{+}$ $\overline{K}^{*}(892)^{0}\rho^{+}$ total	$(1.90 \pm 0.19) \%$ [e] (2.1 ±1.3) %	CL—9070
Γ ₇₅ Γ ₇₆ Γ ₇₇	$\overline{K}^*(892)^0 ho^+$ S-wave $\overline{K}^*(892)^0 ho^+$ P-wave $\overline{K}^*(892)^0 ho^+$ D-wave		CL=90%

Г ₇₈	$\overline{\textit{K}}^*(892)^0 ho^+\textit{D}$ -wave longitudi-	< 7	imes 10 ⁻³	CL=90%
Г ₇₉	$ral = \frac{\pi}{K_1(1270)^0} \pi^+$	< 7	× 10 ⁻³	CL=90%
Ι ₈₀ Γ ₈₁	$\frac{\kappa_1(1400)^{0}}{\overline{K}^{*}(1410)^{0}}\pi^{+}$	(4.9 ± < 7	1.2)% $\times 10^{-3}$	CL=90%
Γ ₈₂	$\overline{K}_{0}^{*}(1430)^{0}\pi^{+}$	(3.7 \pm	0.4)%	
Г ₈₃	$\overline{K}^{*}(1680)^{0}\pi^{+}$	($1.43\pm$	0.30) %	
Г ₈₄	$\overline{K}^*(892)^0 \pi^+ \pi^0$ total	(6.7 \pm	1.4) %	
Γ ₈₅	$\overline{K}^*(892)^0\pi^+\pi^0$ 3-body	[e] (4.2 \pm	1.4) %	
Γ ₈₆	$K^{*}(892)^{-}\pi^{+}\pi^{+}$ total			
Г ₈₇	$K^*(892)^-\pi^+\pi^+$ 3-body	(2.0 \pm	0.9)%	
Г ₈₈	$K^- ho^+\pi^+$ total	(3.1 \pm	1.1) %	
Γ ₈₉	${\cal K}^- ho^+\pi^+$ 3-body	(1.1 \pm	0.4)%	
Γ ₉₀	$\overline{K}{}^0 ho^0\pi^+$ total	(4.2 \pm	0.9)%	CL=90%
Г ₉₁	$\overline{K}{}^0 ho^0\pi^+$ 3-body	(5 \pm	5) $\times 10^{-3}$	
Γ ₉₂	$\overline{K}{}^0$ f ₀ (980) π^+	< 5	imes 10 ⁻³	CL=90%
Г ₉₃	$\overline{K}^{*}(892)^{0} \pi^{+} \pi^{+} \pi^{-}$	(8.1 \pm	3.4) $ imes 10^{-3}$	S=1.7
Г ₉₄	$\overline{K}^*(892)^0 ho^0 \pi^+$	(2.9 _	$^{1.7}_{1.5}$) $\times10^{-3}$	S=1.8
Γ ₉₅	$\overline{\textit{K}}^{*}(892)^{0}\pi^{+}\pi^{+}\pi^{-}$ no- $ ho$	(4.3 \pm	1.7) $ imes$ 10 $^{-3}$	
Г ₉₆	$\mathcal{K}^- ho^0 \pi^+ \pi^+$	(3.1 \pm	0.9) $ imes$ 10 $^{-3}$	
	Pionic m	nodes		
Γ ₉₇	$\pi^+\pi^0$	(2.5 \pm	0.7) $ imes 10^{-3}$	

I 97	$\pi^+\pi^{o}$	$(2.5 \pm 0.7) imes 10^{-3}$	
Г ₉₈	$\pi^+\pi^+\pi^-$	(3.6 \pm 0.4) $ imes$ 10 $^{-3}$	
Г ₉₉	$ ho^{0}\pi^{+}$	$(1.05\pm0.31) imes10^{-3}$	
Γ_{100}	$\pi^+\pi^+\pi^-$ nonresonant	(2.2 ± 0.4) $ imes 10^{-3}$	
Γ_{101}	$\pi^+\pi^+\pi^-\pi^0$	(1.9 $\substack{+1.5\\-1.2}$)%	
Γ ₁₀₂	$\eta \pi^+ imes B(\eta o \pi^+ \pi^- \pi^0)$	(1.7 ± 0.6) $ imes 10^{-3}$	
Γ_{103}	$\omega \pi^+ imes B(\omega o \pi^+ \pi^- \pi^0)$	< 6 $\times 10^{-3}$	CL=90%
Γ ₁₀₄	$\pi^+\pi^+\pi^+\pi^-\pi^-$	(2.1 ± 0.4) $\times 10^{-3}$	
Γ ₁₀₅	$\pi^{+}\pi^{+}\pi^{+}\pi^{-}\pi^{-}\pi^{0}$	(2.9 $^{+2.9}_{-2.0}$) $\times10^{-3}$	

Fractions of some of the following modes with resonances have already appeared above as submodes of particular charged-particle modes.

Γ_{106}	$\eta \pi^+$	(7.5 ± 2.5)) × 10 ⁻³	
Γ ₁₀₇	$\rho^0 \pi^+$	(1.05 ± 0.31) × 10 ⁻³	
Γ_{108}	$\omega \pi^+$	<	7	imes 10 ⁻³	CL=90%
Γ ₁₀₉	$\eta \rho^+$	<	1.2	%	CL=90%
Γ_{110}	η^{\prime} (958) π^+	<	9	imes 10 ⁻³	CL=90%
Γ_{111}	η^{\prime} (958) $ ho^+$	<	1.5	%	CL=90%

Hadronic modes with a $K\overline{K}$ pair

г	$\nu + \overline{\nu} 0$		· · · · - 3	
1 12	κ' κ°	(7.4 ± 1.0)))×10 3	
Γ ₁₁₃	$K^{+}K^{-}\pi^{+}$	[d] (8.8 ±0.8	$3) \times 10^{-3}$	
Γ ₁₁₄	$\phi \pi^+ imes B(\phi o \ K^+ K^-)$	(3.0 ± 0.3	3) $ imes 10^{-3}$	
Γ_{115}	$K^{+}\overline{K}^{*}(892)^{0}$	(2.8 ±0.4	$1) imes 10^{-3}$	
110	$\times B(\overleftarrow{K}^{*0'} \to K^{-}\pi^{+})$	× ×	,	
Г ₁₁₆	${\cal K}^+ {\cal K}^- \pi^+$ nonresonant	(4.5 ± 0.9	9) $ imes$ 10 $^{-3}$	
Γ ₁₁₇	$K^0 \overline{K}{}^0 \pi^+$			
Γ ₁₁₈	$K^*(892)^+\overline{K}{}^0$	(2.1 ± 1.0))%	
	\times B($K^{*+} \rightarrow K^0 \pi^+$)	,	,	
Γ ₁₁₉	$K^+ K^- \pi^+ \pi^0$	_		
Γ ₁₂₀	$\phi \pi^+ \pi^0 \times B(\phi \rightarrow K^+ K^-)$	(1.1 ± 0.9)	5)%	
Γ ₁₂₁	$\phi \rho^+ \times B(\phi \to K^+ K^-)$	< 7	imes 10 ⁻³	CL=90%
Γ ₁₂₂	${\it K}^+{\it K}^-\pi^+\pi^0$ non- ϕ	(1.5 + 0.7)	7 5)%	
Γ ₁₂₃	$K^+\overline{K}{}^0\pi^+\pi^-$	< 2	%	CL=90%
Γ ₁₂₄	$K^0 K^- \pi^+ \pi^+$	(1.0 ± 0.0)	5)%	
Γ ₁₂₅	$K^{*}(892)^{+}\overline{K}^{*}(892)^{0}$	(1.2 ± 0.5)	5)%	
125	$\times B^{2}(K^{*+} \rightarrow K^{0}\pi^{+})$	X		
Γ ₁₂₆	$K^0 K^- \pi^+ \pi^+$ non- $K^{*+} \overline{K}^{*0}$	< 7.9	imes 10 ⁻³	CL=90%
Γ ₁₂₇	$K^+K^-\pi^+\pi^+\pi^-$	—		
Γ ₁₂₈	$\phi \pi^+ \pi^+ \pi^-$	< 1	imes 10 ⁻³	CL=90%
1	\times B($\phi \rightarrow K^+K^-$)			
Γ ₁₂₉	${\cal K}^+ {\cal K}^- \pi^+ \pi^+ \pi^-$ nonresonant	< 3	%	CL=90%

Fractions of the following modes with resonances have already appeared above as submodes of particular charged-particle modes.

Γ ₁₃₀	$\phi \pi^+$	(6.1 :	\pm 0.6) $ imes$ 10 $^{-3}$	
Г ₁₃₁	$\phi \pi^+ \pi^0$	(2.3 :	± 1.0) %	
Γ_{132}	$\phi \rho^+$	< 1.4	%	CL=90%
Γ ₁₃₃	$\phi \pi^+ \pi^+ \pi^-$	< 2	imes 10 ⁻³	CL=90%
Γ ₁₃₄	$K^{+}\overline{K}^{*}(892)^{0}$	(4.2 :	± 0.5) $ imes 10^{-3}$	
Γ_{135}	$K^{*}(892)^{+}\overline{K}^{0}$	(3.2 :	± 1.5) %	
Γ ₁₃₆	K*(892) ⁺ K *(892) ⁰	(2.6 :	± 1.1) %	

Doubly Cabibbo suppressed (DC) modes, $\Delta C = 1$ weak neutral current (C1) modes, or Lepton Family number (LF) or Lepton number (L) violating modes

		<i>,</i> .		
Γ ₁₃₇	$K^+\pi^+\pi^-$	DC	(6.8 ± 1.5) $ imes 10^{-4}$	
Γ ₁₃₈	$K^+ ho^0$	DC	(2.5 ± 1.2) $ imes 10^{-4}$	
Γ ₁₃₉	$K^{*}(892)^{0}\pi^{+}$	DC	(3.6 ± 1.6) $\times 10^{-4}$	
Γ ₁₄₀	${\cal K}^+ \pi^+ \pi^-$ nonresonant	DC	(2.4 ± 1.2) $ imes 10^{-4}$	
Γ_{141}	$K^+ K^+ K^-$	DC	< 1.4 $\times 10^{-4}$	CL=90%
Γ ₁₄₂	ϕ K ⁺	DC	< 1.3 $\times 10^{-4}$	CL=90%
Γ ₁₄₃	$\pi^+ e^+ e^-$	C1	< 6.6 $\times 10^{-5}$	CL=90%

Γ ₁₄₄	$\pi^+ \mu^+ \mu^-$	C1	< 1.8	imes 10 ⁻⁵	CL=90%
Γ ₁₄₅	$\rho^+\mu^+\mu^-$	C1	< 5.6	imes 10 ⁻⁴	CL=90%
Γ ₁₄₆	$K^+ e^+ e^-$		[f] < 2.0	imes 10 ⁻⁴	CL=90%
Γ ₁₄₇	$K^+ \mu^+ \mu^-$		[f] < 9.7	imes 10 ⁻⁵	CL=90%
Γ ₁₄₈	$\pi^+ e^+ \mu^-$	LF	< 1.1	imes 10 ⁻⁴	CL=90%
Γ ₁₄₉	$\pi^+ e^- \mu^+$	LF	< 1.3	imes 10 ⁻⁴	CL=90%
Γ ₁₅₀	$K^+ e^+ \mu^-$	LF	< 1.3	imes 10 ⁻⁴	CL=90%
Γ ₁₅₁	$K^+ e^- \mu^+$	LF	< 1.2	imes 10 ⁻⁴	CL=90%
Γ ₁₅₂	$\pi^- e^+ e^+$	L	< 1.1	imes 10 ⁻⁴	CL=90%
Γ ₁₅₃	$\pi^- \mu^+ \mu^+$	L	< 8.7	imes 10 ⁻⁵	CL=90%
Г ₁₅₄	$\pi^- e^+ \mu^+$	L	< 1.1	imes 10 ⁻⁴	CL=90%
Γ ₁₅₅	$ ho^-\mu^+\mu^+$	L	< 5.6	imes 10 ⁻⁴	CL=90%
Γ ₁₅₆	$K^-e^+e^+$	L	< 1.2	imes 10 ⁻⁴	CL=90%
Γ ₁₅₇	$\mathcal{K}^- \mu^+ \mu^+$	L	< 1.2	imes 10 ⁻⁴	CL=90%
Γ ₁₅₈	$K^- e^+ \mu^+$	L	< 1.3	imes 10 ⁻⁴	CL=90%
Γ ₁₅₉	$K^{*}(892)^{-}\mu^{+}\mu^{+}$	L	< 8.5	imes 10 ⁻⁴	CL=90%

 $\Gamma_{160}~$ A dummy mode used by the fit. (33 ± 5) %

- [a] This is a weighted average of D^{\pm} (44%) and D^{0} (56%) branching fractions. See " D^{+} and $D^{0} \rightarrow (\eta \text{ anything}) / (\text{total } D^{+} \text{ and } D^{0})$ " under " D^{+} Branching Ratios" in these Particle Listings.
- [b] This value averages the e^+ and μ^+ branching fractions, after making a small phase-space adjustment to the μ^+ fraction to be able to use it as an e^+ fraction; hence our ℓ^+ here is really an e^+ .
- [c] An ℓ indicates an e or a μ mode, not a sum over these modes.
- [d] The branching fraction for this mode may differ from the sum of the submodes that contribute to it, due to interference effects. See the relevant papers.
- [e] The two experiments measuring this fraction are in serious disagreement. See the Particle Listings.
- [f] This mode is not a useful test for a $\Delta C=1$ weak neutral current because both quarks must change flavor in this decay.

CONSTRAINED FIT INFORMATION

An overall fit to 32 branching ratios uses 54 measurements and one constraint to determine 20 parameters. The overall fit has a $\chi^2 = 20.8$ for 35 degrees of freedom.

The following off-diagonal array elements are the correlation coefficients $\langle \delta x_i \delta x_j \rangle / (\delta x_i \cdot \delta x_j)$, in percent, from the fit to the branching fractions, $x_i \equiv \Gamma_i / \Gamma_{\text{total}}$. The fit constrains the x_i whose labels appear in this array to sum to one.

	•									
<i>x</i> ₁₁	5									
<i>×</i> 16	4	2								
×25	18	29	8							
×26	14	7	31	25						
x ₃₃	38	9	8	31	25					
_{x34}	32	16	14	56	45	55				
x ₃₉	0	0	0	0	0	0	0			
x ₄₃	7	4	3	13	10	12	23	0		
×52	9	5	4	17	14	16	30	0	18	
×59	15	8	7	28	22	27	49	0	11	15
×73	21	11	9	37	29	36	65	0	15	20
×80	5	3	2	9	7	8	16	0	31	37
×87	3	1	1	5	4	5	9	0	29	13
<i>x</i> 93	5	2	2	9	7	8	15	0	3	5
<i>×</i> 94	3	2	1	6	5	6	11	0	2	3
x ₉₈	19	10	9	35	28	33	61	0	14	18
×100	11	5	5	19	15	18	34	0	8	10
×112	22	7	6	23	18	53	41	0	9	12
^x 160	-35	-26	-12	-41	-34	-38	-55	-58	-46	-45
	×g	×11	^x 16	×25	^x 26	×33	^x 34	×39	^x 43	×52
x ₇₃	32									
×80	8	10								
×87	4	6	12							
x ₉₃	29	10	2	1						
×94	8	7	2	1	15					
×98	30	40	10	5	9	7				
×100	16	22	5	3	5	4	43			
×112	20	26	6	4	6	4	25	14		
×160	-30	-38	-46	-32	-16	-10	-35	-19	-27	
	×59	×73	×80	×87	<i>x</i> 93	<i>×</i> 94	<i>x</i> 98	×100	<i>x</i> ₁₁₂	

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D⁺ BRANCHING RATIOS

See the "Note on D Mesons" above. Some now-obsolete measurements have been omitted from these Listings.

- Inclusive modes

$\Gamma(e^+ \text{ anything})/\Gamma_{\text{tot}}$	tal				Г1/І	
VALUE	EVTS	DOCUMENT ID		TECN	COMMENT	_
0.172 ± 0.019 OUR AVE	RAGE					
$0.20 \begin{array}{c} +0.09 \\ -0.07 \end{array}$		AGUILAR	87E	HYBR	π <i>p</i> , <i>pp</i> 360, 400 GeV	
$0.170\!\pm\!0.019\!\pm\!0.007$	158	BALTRUSAIT.	85 B	MRK3	$e^+ e^-$ 3.77 GeV	
0.168 ± 0.064	23	SCHINDLER	81	MRK2	e^+e^- 3.771 GeV	
$\bullet \bullet \bullet$ We do not use the	ne following	data for averages	, fits	, limits,	etc. • • •	
$0.220 \substack{+0.044 \\ -0.022}$		BACINO	80	DLCO	e^+e^- 3.77 GeV	

D^+ and $D^0 \rightarrow (e^+$ anything) / (total D^+ and D^0)

If measured at the $\psi(3770)$, this quantity is a weighted average of D^+ (44%) and D^0 (56%) branching fractions. Only experiments at $E_{\rm cm} = 3.77$ GeV are included in the average here. We don't put this result in the Meson Summary Table.

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.110 ± 0.011 OUR AV	/ERAGE Er	ror includes scale	facto	or of 1.1.	
$0.117 \!\pm\! 0.011$	295	BALTRUSAIT.	. 85 B	MRK3	e^+e^- 3.77 GeV
0.10 ± 0.032		⁴ SCHINDLER	81	MRK2	e^+e^- 3.771 GeV
0.072 ± 0.028		FELLER	78	MRK1	e ⁺ e ⁻ 3.772 GeV
• • • We do not use	the following	data for averages	, fits	, limits,	etc. ● ● ●
$0.096\!\pm\!0.004\!\pm\!0.011$	2207	⁵ ALBRECHT	96 C	ARG	e^+e^-pprox 10 GeV
$0.134\!\pm\!0.015\!\pm\!0.010$		⁶ ABE	93E	VNS	e^+e^- 58 GeV
$0.098 \!\pm\! 0.009 \! \substack{+ 0.006 \\ - 0.005}$	240	⁷ ALBRECHT	92F	ARG	e^+e^-pprox 10 GeV
$0.096\!\pm\!0.007\!\pm\!0.015$		⁸ ONG	88	MRK2	e ⁺ e ⁻ 29 GeV
$0.116\substack{+0.011\\-0.009}$		⁸ PAL	86	DLCO	e^+e^- 29 GeV
$0.091\!\pm\!0.009\!\pm\!0.013$		⁸ AIHARA	85	ТРС	e ⁺ e ⁻ 29 GeV
$0.092\!\pm\!0.022\!\pm\!0.040$		⁸ ALTHOFF	84J	TASS	e ⁺ e ⁻ 34.6 GeV
0.091 ± 0.013		⁸ KOOP	84	DLCO	See PAL 86
$0.08\ \pm 0.015$		⁹ BACINO	79	DLCO	e^+e^- 3.772 GeV
	A				

⁴ Isolates D^+ and $D^0 \rightarrow e^+ X$ and weights for relative production (44%–56%).

⁵ALBRECHT 96C uses e^- in the hemisphere opposite to $D^{*+} \rightarrow D^0 \pi^+$ events.

 6 ABE 93E also measures forward-backward asymmetries and fragmentation functions for _ c and b quarks.

⁷ALBRECHT 92F uses the excess of right-sign over wrong-sign leptons in a sample of events tagged by fully reconstructed $D^*(2010)^+ \rightarrow D^0 \pi^+$ decays.

⁸ Average BR for charm $\rightarrow e^+ X$. Unlike at $E_{\rm cm} = 3.77$ GeV, the admixture of charmed mesons is unknown.

⁹Not independent of BACINO 80 measurements of $\Gamma(e^+ \text{ anything})/\Gamma_{\text{total}}$ for the D^+ and D^0 separately.

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$$\Gamma(K^{-} \text{ anything})/\Gamma_{\text{total}}$$

$\left[\Gamma(\overline{K}^{0} \text{ anything}) + \Gamma(K^{0} \text{ anything})\right] / \Gamma_{\text{total}}$							
VALUE	EVTS	DOCUMENT ID		TECN	COMMENT		
0.59 \pm 0.07 OUR AV	'ERAGE						
$0.612\!\pm\!0.065\!\pm\!0.043$		COFFMAN	91	MRK3	e ⁺ e ⁻ 3.77 GeV		
0.52 ± 0.18	15	SCHINDLER	81	MRK2	e ⁺ e ⁻ 3.771 GeV		
0.39 ± 0.29	3	VUILLEMIN	78	MRK1	e^+e^- 3.772 GeV		

$\Gamma(K^+ \text{ anything}) / \Gamma_t$	otal				Г4/Г
VALUE	<u>EVTS</u>	DOCUMENT ID		TECN	COMMENT
0.058 ± 0.014 OUR AV	'ERAGE				
$0.055\!\pm\!0.013\!\pm\!0.009$		COFFMAN	91	MRK3	e^+e^- 3.77 GeV
$0.08 \begin{array}{c} +0.06 \\ -0.05 \end{array}$		AGUILAR	87E	HYBR	π <i>p</i> , <i>pp</i> 360, 400 GeV
0.06 ± 0.04	12	SCHINDLER	81	MRK2	e^+e^- 3.771 GeV
0.06 ± 0.06	2	VUILLEMIN	78	MRK1	e^+e^- 3.772 GeV

D^+ and $D^0 \rightarrow (\eta \text{ anything}) / (\text{total } D^+ \text{ and } D^0)$

If measured at the $\psi(3770)$, this quantity is a weighted average of D^+ (44%) and D^0 (56%) branching fractions. Only the experiment at $E_{cm} = 3.77$ GeV is used. <u>VALUE</u> **OCUMENT ID OCUMENT OCUMENT ID OCUMENT OCUMENT**

 11 The BRANDELIK 79 result is based on the absence of an η signal at $E_{\rm Cm}=$ 4.03 GeV. PARTRIDGE 81 observes a substantially higher η cross section at 4.03 GeV.

$\Gamma(c/\overline{c} \rightarrow \mu^+ \text{ anything})/\Gamma(c/\overline{c} \rightarrow \text{ anything})$

This is the average branching ratio for charm $\rightarrow \mu^+ X$. The mixture of charmed particles is unknown and may actually contain states other than *D* mesons. We don't put this result in the Meson Summary Table.

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
$0.081^{+0.010}_{-0.009} \text{ OUR}$	AVERAGE				
$0.086 \!\pm\! 0.017 \!+\! 0.00 \\ \!-\! 0.00 \\$	8 7 69	¹² ALBRECHT	92F	ARG	e^+e^-pprox 10 GeV
$0.078 \!\pm\! 0.009 \!\pm\! 0.01$	2	ONG	88	MRK2	e^+e^- 29 GeV
$0.078\!\pm\!0.015\!\pm\!0.02$		BARTEL	87	JADE	e ⁺ e ⁻ 34.6 GeV
$0.082 \!\pm\! 0.012 \!+\! 0.02 \!-\! 0.01$		ALTHOFF	84 G	TASS	e^+e^- 34.5 GeV
• • • We do not us	se the following	g data for average	es, fits,	limits,	etc. • • •
$0.089 \pm 0.018 \pm 0.02$	5	BARTEL	85J	JADE	See BARTEL 87
events tagged b	y fully reconstr Lepton	ructed <i>D</i> *(2010) [¬]	$+ \rightarrow I$ tonic	$D^0 \pi^+$ of modes	decays.
$\Gamma(\mu^+ u_\mu) / \Gamma_{ m total}$					Γ ₇ /Γ
See the "Not limit inferred	e on Pseudosc on the D ⁺ de	alar-Meson Decay cay constant from	/ Cons n the li	tants" i mit here	in the π^\pm Listings for the e on $\Gamma(\mu^+ u_\mu)/\Gamma_{ m total}$.
VALUE	<u>CL%_EVTS</u>	DOCUMENT ID		TECN	COMMENT
<0.00072	90	ADLER	88 B	MRK3	e^+e^- 3.77 GeV
• • • We do not us	se the following	g data for average	es, fits,	limits,	etc. • • •
< 0.02	90 0	¹³ AUBERT	83	SPEC	μ^+ Fe, 250 GeV
¹³ AUBERT 83 obt of (D^+, D^-) , (tains an upper l D^+, \overline{D}^0), (D^-	imit 0.014 assumi (D^0, \overline{D}) , and (D^0, \overline{D})	ng the 5 ⁰). V	final sta Ve quot	ate contains equal amounts e the limit they get under

more general assumptions.

 $\Gamma(\overline{K}^{0}\ell^{+}\nu_{\ell})/\Gamma_{\text{total}}$ Γ8/Γ We average our $\overline{K}^0 e^+ \nu_e$ and $\overline{K}^0 \mu^+ \nu_\mu$ branching fractions, after multiplying the latter by a phase-space factor of 1.03 to be able to use it with the $\overline{K}^0 e^+ \nu_{\rho}$ fraction. Hence our ℓ^+ here is really an e^+ . VALUE DOCUMENT ID COMMENT 0.068±0.008 OUR AVERAGE 98 Our $\Gamma(\overline{K}^0 e^+ \nu_e) / \Gamma_{\text{total}}$ 0.067 ± 0.009 PDG $0.072\substack{+0.031 \\ -0.020}$ 98 1.03 × our $\Gamma(\overline{\kappa}^0 \mu^+ \nu_{\mu})/\Gamma_{\text{total}}$ PDG $\Gamma(\overline{K}^0 e^+ \nu_e) / \Gamma_{\text{total}}$ Γ9/Γ DOCUMENT ID TECN COMMENT EVTS 0.067±0.009 OUR FIT $0.06 \begin{array}{c} +0.022\\ -0.013 \pm 0.007 \end{array}$ 91 MRK3 $e^+e^- \approx 3.77$ GeV 13 BAI $\Gamma(\overline{K}^0 e^+ \nu_e) / \Gamma(\overline{K}^0 \pi^+)$ Γ_9/Γ_{33} DOCUMENT ID _____ TECN _COMMENT EVTS 2.32±0.31 OUR FIT ¹⁴ BEAN 93C CLE2 $e^+e^- \approx \Upsilon(4S)$ $2.60 \pm 0.35 \pm 0.26$ 186 ¹⁴ BEAN 93C uses $\overline{K}^0 \mu^+ \nu_{\mu}$ as well as $\overline{K}^0 e^+ \nu_{\rho}$ events and makes a small phase-space adjustment to the number of the μ^+ events to use them as e^+ events. $\Gamma(\overline{K}^0 e^+ \nu_e) / \Gamma(K^- \pi^+ \pi^+)$ Γ9/Γ34 DOCUMENT ID TECN COMMENT 0.74±0.10 OUR FIT $0.66 \pm 0.09 \pm 0.14$ γ Be 80–240 GeV ANJOS 91C E691 $\Gamma(\overline{K}^{0}\mu^{+}\nu_{\mu})/\Gamma_{\rm total}$ Γ₁₀/Γ **EVTS** DOCUMENT ID TECN COMMENT VALUE $0.07 \begin{array}{c} +0.028\\ -0.016 \end{array} \pm 0.012$ 91 MRK3 $e^+e^- \approx 3.77$ GeV 14 BAI $\Gamma(\overline{K}^0 \mu^+ \nu_{\mu}) / \Gamma(\mu^+ \text{anything})$ Γ_{10}/Γ_6 VALUE EVTS DOCUMENT ID COMMENT • • • We do not use the following data for averages, fits, limits, etc. • • • 84 ¹⁵ AOKI 0.76 ± 0.06 88 π^- emulsion 15 From topological branching ratios in emulsion with an identified muon. $\Gamma(K^{-}\pi^{+}e^{+}\nu_{e})/\Gamma_{\text{total}}$ Γ_{11}/Γ VALUE DOCUMENT ID TECN COMMENT $0.041^{+0.009}_{-0.007}$ OUR FIT $0.035^{+0.012}_{-0.007}{\pm}0.004$ ¹⁶ BAI 14 91 MRK3 $e^+e^- \approx 3.77$ GeV • • We do not use the following data for averages, fits, limits, etc. • ¹⁷ AGUILAR-... 90 87F HYBR πp, pp 360, 400 < 0.057 GeV ¹⁶ BAI 91 finds that a fraction $0.79^{+0.15}_{-0.17}^{+0.09}$ of combined D^+ and D^0 decays to $\overline{K}\pi e^+\nu_e$ (24 events) are $\overline{K}^*(892)e^+\nu_e$. ¹⁷AGUILAR-BENITEZ 87F computes the branching fraction using topological normalization. HTTP://PDG.LBL.GOV Page 12 Created: 6/29/1998 12:20

 $\Gamma(\overline{K}^*(892)^0\ell^+\nu_\ell)/\Gamma_{\rm total}$ Γ_{24}/Γ We average our $\overline{\kappa}^{*0} e^+ \nu_e$ and $\overline{\kappa}^{*0} \mu^+ \nu_{\mu}$ branching fractions, after multiplying the latter by a phase-space factor of 1.05 to be able to use it with the $\overline{K}^{*0}e^+\nu_{\rho}$ fraction. Hence our ℓ^+ here is really an e^+ . VALUE DOCUMENT ID COMMENT 0.047 ± 0.004 OUR AVERAGE 98 Our $\Gamma(\overline{K}^{*0}e^+\nu_e)/\Gamma_{\text{total}}$ 98 1.05 × our $\Gamma(\overline{K}^{*0}\mu^+\nu_\mu)/\Gamma_{\text{total}}$ 0.048 ± 0.005 PDG PDG 0.046 ± 0.006 $\Gamma(\overline{K}^*(892)^0 e^+ \nu_e) / \Gamma(\overline{K}^- \pi^+ e^+ \nu_e)$ Γ_{25}/Γ_{11} Unseen decay modes of the $\overline{K}^*(892)^0$ are included. VALUE DOCUMENT ID TECN COMMENT EVTS $1.16^{+0.21}_{-0.24}$ OUR FIT 1.0 ± 0.3 ADAMOVICH 91 OMEG π^- 340 GeV 35 $\Gamma(\overline{K}^*(892)^0 e^+ \nu_e) / \Gamma(K^- \pi^+ \pi^+)$ Γ_{25}/Γ_{34} Unseen decay modes of the $\overline{K}^*(892)^0$ are included. VALUE DOCUMENT ID EVTS TECN COMMENT 0.53±0.05 OUR FIT 0.54±0.05 OUR AVERAGE ¹⁸ BEAN 93C CLE2 $e^+e^- \approx \Upsilon(4S)$ $0.67\!\pm\!0.09\!\pm\!0.07$ 710 35 ADAMOVICH 91 OMEG π - 340 GeV $0.62 \pm 0.15 \pm 0.09$ $0.55 \!\pm\! 0.08 \!\pm\! 0.10$ 91 ARG $e^+e^- \approx 10.4 \text{ GeV}$ 880 ALBRECHT $0.49 \pm 0.04 \pm 0.05$ ANJOS 89B E691 Photoproduction $^{18}\,{\rm BEAN}$ 93C uses $\overline{\kappa}^{*0}\,\mu^+\,\nu_\mu$ as well as $\overline{\kappa}^{*0}\,e^+\,\nu_e$ events and makes a small phase-space adjustment to the number of the μ^+ events to use them as e^+ events. $\Gamma(K^-\pi^+e^+\nu_e \text{ nonresonant})/\Gamma_{\text{total}}$ Γ_{13}/Γ <u>VALUE</u> <u>CL%</u> TECN COMMENT DOCUMENT ID ¹⁹ ANJOS 90 < 0.007 89B E691 Photoproduction ¹⁹ ANJOS 89B assumes a $\Gamma(D^+ \rightarrow K^- \pi^+ \pi^+)/\Gamma_{\text{total}} = 9.1 \pm 1.3 \pm 0.4\%$. $\Gamma(K^{-}\pi^{+}\mu^{+}\nu_{\mu})/\Gamma_{\text{total}}$ $\Gamma_{14}/\Gamma = (\Gamma_{16} + \frac{2}{3}\Gamma_{26})/\Gamma$ VALUF DOCUMENT ID 0.032 ± 0.004 OUR FIT Error includes scale factor of 1.1. $\Gamma(\overline{K}^*(892)^0 \mu^+ \nu_\mu) / \Gamma_{\text{total}}$ Γ_{26}/Γ Unseen decay modes of the $\overline{K}^*(892)^0$ are included. VALUE DOCUMENT ID <u>TECN</u> <u>COMME</u>NT <u>EVTS</u> **0.044** \pm **0.006 OUR FIT** Error includes scale factor of 1.1. ²⁰ KODAMA 0.0325±0.0071±0.0075 224 92C E653 π^- emulsion 600 GeV ²⁰ KODAMA 92C measures $\Gamma(D^+ \rightarrow \overline{\kappa}^{*0} \mu^+ \nu_{\mu}) / \Gamma(D^0 \rightarrow \kappa^- \mu^+ \nu_{\mu}) = 0.43 \pm 0.09 \pm 0.01 \pm 0.00 \pm 0.0$ 0.09 and then uses $\Gamma(D^0 \rightarrow K^- \mu^+ \nu_{\mu}) = (7.0 \pm 0.7) \times 10^{10} \, \text{s}^{-1}$ to get the quoted branching fraction. See also the footnote to KODAMA 92C in the next data block.

Γ $(\overline{K}^*(892)^0 \mu^+ u_\mu)/$	$\Gamma(K^-\pi^+\pi)$	$\pi^+)$			Г ₂₆ /	Г ₃₄
Unseen decay mod	les of the \overline{K}	[*] *(892) ⁰ are inc	luded	ł.		
VALUE	<u>EVTS</u>	DOCUMENT ID		TECN	COMMENT	
0.49±0.06 OUR FIT						
0.53 ± 0.06 OUR AVERA	GE					
$0.56 \pm 0.04 \pm 0.06$	875	FRABETTI	93E	E687	$\gamma { m Be} \; {\it E}_{\gamma} pprox \;$ 200 GeV	
$0.46\!\pm\!0.07\!\pm\!0.08$	224 23	¹ KODAMA	920	E653	π^- emulsion 600 GeV	V
²¹ KODAMA 92C uses	s the same	$\overline{K}^{*0}\mu^+\nu_{\mu}$ ev	ents	normali	zing instead with D^0	\rightarrow
${\cal K}^- \mu^+ u_\mu$ events, as	s reported in	n the preceding e	data	block.		
$\Gamma(K^-\pi^+\mu^+\nu_\mu \text{ nonr})$	resonant)/	$\Gamma(\kappa^{-}\pi^{+}\mu^{+})$	$ u_{\mu}$)	Г <u>16</u> /Г <u>тес</u>	$\Gamma_{14} = \Gamma_{16} / (\Gamma_{16} + \frac{2}{3}\Gamma_{16})$	26)
0.083±0.029 OUR FIT 0.083±0.029		FRABETTI	93E	E687	< 0.12 (90% CL)	
$\Gamma(\overline{K}^{0}\pi^{+}\pi^{-}e^{+}\nu_{e})/I$	total	DOCUMENT ID		TECN		7/F
VALUE	<u>EVIS</u>	<u>DOCOMENT ID</u>	- £.+-			
• • • we do not use the	e tonowing d	data for average	s, nts	s, limits,	etc. ● ● ●	
$0.022^{+0.047}_{-0.006}{\pm}0.004$	1 22	² AGUILAR	87F	HYBR	<i>πp</i> , <i>pp</i> 360, 400 GeV	/
²² AGUILAR-BENITEZ tion.	87F compu	ites the branchir	ng fra	action us	ing topological norma	liza-
$\Gamma(\kappa^{-}\pi^{+}\pi^{0}e^{+}\nu_{e})/\Gamma$	total				Г1	в/Г
VALUE	<u>EVTS</u>	DOCUMENT ID		TECN	COMMENT	
$\bullet \bullet \bullet$ We do not use the	e following o	data for average	s, fits	s, limits,	etc. • • •	
$0.044^{+0.052}_{-0.013}{\pm}0.007$	2 23	³ AGUILAR	87F	HYBR	πp, pp 360, 400 GeV	/
²³ AGUILAR-BENITEZ tion.	87F compu	ites the branchir	ng fra	action us	ing topological norma	liza-
$\Gamma((\overline{K}^*(892)\pi)^0 e^+ \nu$	$r_e)/\Gamma_{total}$	*(892) are inclu	ıded		Г <u>1</u> ,	9/F
<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT</u> ID		<u>TEC</u> N	COMMENT	
<0.012	90	ANJOS	92	E691	Photoproduction	
$\Gamma((\overline{K}\pi\pi)^0 e^+ \nu_a \text{ non-}$	- <u>K</u> *(892))	/F _{total}			Гэ	<u>∩/Г</u>
VALUE	CL%	DOCUMENT ID		TECN	COMMENT	07
<0.009	90	ANJOS	92	E691	Photoproduction	
$\Gamma(K^{-}\pi^{+}\pi^{0}\mu^{+}\nu_{\mu})/$	Г(<i>К</i> ⁻ π ⁺	$\mu^+ \nu_{\mu}$		Г ₂₁ /Г	$\Gamma_{14} = \Gamma_{21} / (\Gamma_{16} + \frac{2}{3} \Gamma_{16})$	26)
VALUE	CL%	DOCUMENT ID		TECN	COMMENT	_3/
<0.042	90	FRABETTI	93E	E687	$\gamma \operatorname{Be} \overline{E}_{\gamma} \approx 200 \ \operatorname{GeV}$	

$\Gamma(\pi^0 \ell^+ \nu_\ell) / \Gamma(\overline{K}^0 \ell^-)$	+ν _ℓ)					Г <u>22</u> /Г ₈
VALUE	EVTS	DOCUMENT ID		TECN	COMMENT	
$0.046 \pm 0.014 \pm 0.017$	100	²⁴ BARTELT	97	CLE2	$e^+e^- \approx$	$\Upsilon(4S)$
• • • We do not use the	ne followi	ng data for average	s, fits	, limits,	etc. • • •	
$0.085 \!\pm\! 0.027 \!\pm\! 0.014$	53	²⁵ ALAM	93	CLE2	See BART	ELT 97
²⁴ BARTELT 97 thus ments and form fac	directly r tors at <i>a</i>	measures the product $2 = 0$: $ V_{ad}/V_{ad} ^2$	t of $ f^{\pi} $	ratios so $(0)/f^{k}$	quared of CF $(0) ^2 = 0.0$	$\begin{array}{l} KM \ matrix \ ele- \\ 046 \ + \ 0.014 \ + \end{array}$
0.017.			1, 4	-(*)/ +		
²⁵ ALAM 93 thus direction and form factors at	ctly meas $q^2=0$:	sures the product of $V_{cd}/V_{cs} ^2 \cdot f^{\pi}_+($	ratios 0)/ <i>f</i>	square $\frac{1}{2}(0) ^2$	d of CKM m $= 0.085 \pm 0$	hatrix elements $.027 \pm 0.014.$
$\Gamma(\pi^+\pi^-e^+ u_e)/\Gamma_{to}$	tal			TECH	601 M 5 M 7	Г ₂₃ /Г
VALUE	<u> </u>	DOCUMENT ID	<i>c</i> .	<u>TECN</u>	<u>COMMENT</u>	,
• • • We do not use th	ne followi	ng data for average	s, fits	, limits,	etc. ● ● ●	
< 0.057	90	²⁰ AGUILAR	87F	HYBR	<i>π</i> p, p p 36	0, 400 GeV
²⁶ AGUILAR-BENITE tion.	Z 87F coi	mputes the branchi	ng fra	ction us	sing topolog	ical normaliza-
$\Gamma(ho^{0} e^{+} u_{e}) / \Gamma_{ ext{total}}$						Г ₂₇ /Г
VALUE	<u> </u>	DOCUMENT ID		<u>TECN</u>	<u>COMMENT</u>	
• • • We do not use the	ne followi	ng data for average	s, fits	, limits,	etc. • • •	
<0.0037	90	BAI	91	MRK3	$e^+e^- \approx$	3.77 GeV
$\Gamma(\rho^0 e^+ \nu_e) / \Gamma(\overline{K}^*(e^+)) / \Gamma($	892) ⁰ e ⁺	ν _e)		TECH	601 M ENT	Γ_{27}/Γ_{25}
	EVIS	27 ALTAL A	07		COMMENT	500 C)/
0.045±0.014±0.009	49	- AITALA	97	E791	π nucleu	s, 500 Gev
²⁷ AITALA 97 explicitl	y subtrac	ts $D^+ o \eta' e^+ \nu_e$	and o [.]	ther bac	kgrounds to	get this result.
$\Gamma(\rho^0 \mu^+ \nu_{\mu}) / \Gamma(\overline{K}^*)$	892) ⁰ µ⁼	+ν)				[28/[26
VALUE	EVTS	DOCUMENT ID		TECN	COMMENT	- 20/ - 20
0.061±0.014 OUR AVE	RAGE					
$0.051 \pm 0.015 \pm 0.009$ 0.079 + 0.019 + 0.013	54 30	²⁸ AITALA 29 FRABETTI	97 07	E791 E687	π^{-} nucleu	s, 500 GeV ∼ 220 GeV
• • • We do not use the	ne followi	ng data for average	s. fits	. limits.	etc. • • •	~ 220 000
$0.044^{+0.031}_{-0.025}{\pm}0.014$	4	³⁰ KODAMA	93 C	E653	π^- emulsi	on 600 GeV
²⁸ AITALA 97 explicit	tly subtra	octs $D^+ \rightarrow \eta' \mu^+$	$ u_{\mu}$ a	nd othe	er backgroun	ids to get this
result. ²⁹ Because the reconst includes any D ⁺ -	truction $e_{n',u+1}$	efficiency for photor $y \rightarrow 2^{0} y + y = 0$	ns is lo	ow, this	FRABETTI	97 result also
	νημυ 			a + 2.8		
of backgrounds that	t affect tl	his number are some	ewhat	.0 – 2.3 model	\pm 1.5 events dependent.	; the estimates
$\Gamma(\phi e^+ \nu_e) / \Gamma_{\text{total}}$	the d not	included in the cos	rch a		sted for	Г ₂₉ /Г
VALUE	CL%	DOCUMENT ID		TECN	COMMENT	
<0.0209	90	BAI	91	MRK3	$e^+e^- \approx$	3.77 GeV

<u>CUMENT ID</u> 9 <u>CUMENT ID</u> RTELT 9 cluded in the <u>CUMENT ID</u> DAMA 9 es with a K	n are c <u>TE</u> 01 MF <u>TE</u> 037 CL 038 E6 038 E6 ₹ or F	$\frac{CN}{CN} = \frac{C}{CN}$ $\frac{CN}{CN} = \frac{C}{CN}$ $\frac{CN}{CN} = \frac{C}{CN}$	comment $e^+e^- \approx 3$ comment $e^+e^- \approx 7$ $e^+e^- \approx 7$ orrected fo comment π^- emulsic	3.77 GeV F₃₁/F (4 <i>S</i>) F₃₂/F r. on 600 GeV	
<u>SUMENT ID</u> RTELT 9 rμ) cluded in the <u>SUMENT ID</u> DAMA 9 es with a K	<u>7</u> 91 MF <u>7</u> CL 97 CL 97 CL 93 E6 93 E6 7 or 7	$\frac{CN}{CN} = \frac{C}{CN}$ $\frac{CN}{CN} = \frac{C}{CN}$ $\frac{CN}{CN} = \frac{C}{CN}$	$e^+e^- \approx 1$ comment $e^+e^- \approx 1$ orrected fo comment π^- emulsio	3.77 GeV F₃₁/F (4 <i>S</i>) F₃₂/F r. on 600 GeV	22
<u>CUMENT ID</u> RTELT 9 cluded in the <u>CUMENT ID</u> DAMA 9 es with a κ	<u>TE</u> 97 CL search <u>TE</u> 938 E6 7 or 7	$\frac{CN}{E2} = \frac{C}{6}$ $\frac{CN}{CN} = \frac{C}{6}$ $\frac{CN}{CN} = \frac{C}{6}$	COMMENT $e^+e^-\approx 1$ orrected fo COMMENT π^- emulsio	Γ ₃₁ /Γ ⁽⁴⁵⁾ Γ ₃₂ /Γ r. on 600 GeV	22
CUMENT ID RTELT 9 1	<u>TE</u> 97 CL search <u>TE</u> 938 E6 7 or 7	<u>CN</u> E2 6 are co <u>CN</u> 53 7 CKK	$\frac{COMMENT}{e^+e^-\approx 1}$ orrected fo $\frac{COMMENT}{\pi^-}$ emulsio	r(4S) Γ 32/Γ r. on 600 GeV	26
RTELT 9 cluded in the <u>UMENT ID</u> DAMA 9 es with a K	97 CL search <u>76</u> 938 E6 7 or 7	.E2 e n are co <u>CN (</u> 53 7 7 K K	$e^+e^- \approx 7$ orrected fo <u>COMMENT</u> π^- emulsic	r(45) F₃₂/F r. on 600 GeV	26
γμ) cluded in the <u>UMENT ID</u> DAMA 9 es with a K	search <u>7E</u> 93B E6 7 or 7	n are co <u>CN (</u> 53 7 CKK	orrected fo <u>COMMENT</u> π [—] emulsio	Γ ₃₂ /Γ r. on 600 GeV	26
cluded in the <u>CUMENT ID</u> DAMA 9 es with a K	search <u>TE</u> 93B E6 7 or 7	n are co <u>CN (</u> 553 7 CKK	orrected fo <u>COMMENT</u> π [—] emulsic	r. on 600 GeV -	
DAMA 9 es with a \overline{K}	938 E6	53 7 KK	π^- emulsic	on 600 GeV	
es with a \overline{K}	T or T	ϚĸͲ		-	
				Г ₃₃	/Г
UMENT ID	TE	<u>CN</u>	COMMENT		
s scale factor	of 1.1				
LER 8	38c MF	RK3 é	e ⁺ e ⁻ 3.77	7 GeV	
INDLER 8	81 MF	RK2 e	e ⁺ e ⁻ 3.77	71 GeV	
RUZZI 7	77 MF	RK1 e	e ⁺ e ⁻ 3.77	7 GeV	
$(e^+ e^- \rightarrow \psi)$ (ADLER 880	ψ (3770 C) valu	D)) \times ie of σ	branching $\dot{r} = 4.2 \pm 0$	fraction to 0.6 ± 0.3 nb -	be ,
uch as $D^+ - \Gamma(D^+ \to K_Q^0)$ sured. BIGI 9	$\rightarrow \overline{K}^{0}$ $S^{0} \pi^{+}$; 5 point	π^+ th ts out t	at that interfe where bot	Γ 33/Γ rence betwe h occur, co	34 en
percent.	i umpn		where bot		
percent.	TI	ECN	COMMENT		
y percent. <u>CUMENT ID</u> cale factor of	<u></u>	<u>ECN</u>	<u>COMMENT</u>		
consuppressed percent. <u>CUMENT ID</u> cale factor of ludes scale fa	<u></u>	<u>ECN</u> f 1.4.	<u>COMMENT</u>		
CUMENT ID cale factor of ludes scale fa	<u>TI</u> 1.1. actor of 97 Cl	<u>ECN</u> f 1.4. LE2	$\frac{COMMENT}{e^+e^-} \approx$	<i>Υ</i> (4 <i>S</i>)	
<i><u>CUMENT ID</u></i> cale factor of ludes scale fa SHAI	<u>71</u> F 1.1. actor of 97 Cl 90C E6	<u>ECN</u> f 1.4. LE2 691	$\frac{COMMENT}{e^+e^-} \approx$ Photoprod	$\Upsilon(4S)$ luction	
consuppressed percent. cale factor of ludes scale fa SHAI Ω IJOS $\Omega^+ \to \overline{P}$	$T_{1.1.}$ actor of 97 Cl 90C E	E <u>CN</u> f 1.4. LE2 691 aplitudo	$\frac{COMMENT}{e^+e^-} \approx$ Photoprod es.	$\Upsilon(4S)$ luction	
$\frac{CUMENT ID}{cale factor of ludes scale fa}$	$\frac{Tl}{1.1.}$ actor of 97 Cl 90C El	ECN f 1.4. LE2 691 nplitude	$\frac{COMMENT}{e^+e^-} \approx$ Photoprod es.	$\Upsilon(4S)$ luction	/Г
$\begin{array}{c} \hline consumption \\ \hline constraints \\ \hline const$	$\frac{TI}{1.1.}$ actor of 97 Cl 90C EC $\overline{K}\pi$ am	<u>ECN</u> f 1.4. LE2 691 nplitude	$\underline{COMMENT}$ $e^+e^- \approx$ Photoprod es.	$\Upsilon(4S)$ luction Г₃₄	/ Г
consuppressed percent. cale factor of ludes scale fa SHAI IJOS of $D^+ \rightarrow \overline{P}$	$\frac{TI}{1.1.}$ actor of 97 Cl 90C EC $\overline{K}\pi$ am	E <u>CN</u> f 1.4. LE2 691 aplitude	$\frac{COMMENT}{e^+e^-} \approx$ Photoprod es. $COMMENT$	Υ(4 <i>S</i>) luction Γ₃₄	/ Г
$\frac{CUMENT ID}{CUMENT ID}$ $\frac{CUMENT ID}{CUMENT ID}$ $\frac{CUMENT ID}{CUMENT ID}$	$\frac{TI}{51.1.}$ actor of 97 Cl 90C El $\overline{K}\pi$ am \underline{TE} 94 CL	ECN f 1.4. LE2 691 nplitude	$\frac{COMMENT}{e^+e^-} \approx$ Photoprod es. $\frac{COMMENT}{e^+e^-} \approx 1$	Υ(45) luction Γ34	/ Г
$\begin{array}{c} \text{CUMENT ID} \\ \text{CUMENT ID} \\ Comparison of for a scale factor of factor $	$\frac{TI}{5}$ 1.1. actor of 97 Cl 90C El $\overline{K}\pi$ am <u>TE</u> 94 CL 38C MF	E <u>CN</u> f 1.4. LE2 691 nplitude <u>CCN (</u> .E2 e RK3 e	$\frac{COMMENT}{e^+e^-} \approx$ Photoprod es. $\frac{COMMENT}{e^+e^-} \approx 7$ $e^+e^- \approx 7$	Υ(4 <i>S</i>) luction Γ34 Υ(4 <i>S</i>) 7 GeV	/ Г
$\begin{array}{c} \hline consumptions \\ \hline constraints \\ \hline cons$	T.1.1. actor of 97 Cl 90C El $\overline{K}\pi$ am <u>TE</u> 94 CL 38C MF 31 MF	<u>ECN</u> f 1.4. LE2 691 oplitude <u>CCN</u> .E2 RK3 6 RK3 6	$\frac{COMMENT}{e^+e^-} \approx$ Photoprod es. $\frac{COMMENT}{e^+e^-} \approx 1$ $e^+e^- \approx 1$ $e^+e^- 3.77$ $e^+e^- 3.77$	Υ(4 <i>S</i>) luction Γ34 Υ(4 <i>S</i>) 7 GeV 71 GeV	/ Г
$\begin{array}{c} \hline consumptions \ constraints \ constr$	$\frac{71}{51.1.}$ actor of 97 Cl 90C El $\overline{K}\pi$ am \underline{TE} 94 CL 38C MF 31 MF 77 MF	E <u>CN</u> f 1.4. LE2 691 nplitude <u>CN (</u> .E2 (RK3 (RK3 (RK2 (RK1 ($\frac{COMMENT}{e^+e^-} \approx$ Photoprod es. $\frac{COMMENT}{e^+e^- \approx 1}$ $e^+e^- 3.77$ $e^+e^- 3.77$ $e^+e^- 3.77$	Υ(4S) luction Γ34 Υ(4S) 7 GeV 71 GeV 7 GeV	/ Г
	$\frac{DCUMENT ID}{CUMENT ID}$ scale factor of cludes scale fa SHAI NJOS s of $D^+ \rightarrow \overline{D}$	y percent. <u>CUMENT ID</u> <u>T</u> scale factor of 1.1. cludes scale factor o SHAI 97 C NJOS 90C E s of $D^+ \rightarrow \overline{K}\pi$ and <u>CUMENT ID TE</u>	$p_{\rm c}$ v percent. <u>CUMENT ID</u> <u>TECN</u> scale factor of 1.1. cludes scale factor of 1.4. SHAI 97 CLE2 NJOS 90C E691 s of $D^+ \rightarrow \overline{K}\pi$ amplitud <u>CUMENT ID TECN</u>	v percent. <u>OCUMENT ID</u> <u>TECN</u> <u>COMMENT</u> scale factor of 1.1. cludes scale factor of 1.4. SHAI 97 CLE2 $e^+e^- \approx$ NJOS 90C E691 Photoprod s of $D^+ \to \overline{K}\pi$ amplitudes. <u>CUMENT ID</u> <u>TECN</u> <u>COMMENT</u>	Do suppressed ampinitates, mille bein occur, expv percent.DCUMENT IDTECNCOMMENTscale factor of 1.1.cludes scale factor of 1.4.SHAI97SHAI97CLE2 $e^+e^- \approx \Upsilon(4S)$ NJOS90CE691Photoproductions of $D^+ \rightarrow \overline{K}\pi$ amplitudes. F34 CUMENT IDTECNCOMMENT

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+0.015	37			
0.064 ± 0.013 - 0.014	37 BARLAG	9 2C	ACCM	π^- Cu 230 GeV
$0.063^{+0.028}_{-0.014} \pm 0.011$ 8	³⁷ AGUILAR	87F	HYBR	π <i>p</i> , <i>pp</i> 360, 400 GeV
³⁴ BALEST 94 measures the ratif fractions to be 2.35 ± 0.16 $K^- \pi^+$ fraction (AKERIB 92) ³⁵ SCHINDLER 81 (MARK-2) models 0.38 ± 0.05 nb. We use the ³⁶ PERUZZI 77 (MARK-1) me 0.36 ± 0.06 nb. We use the ³⁷ AGUILAR-BENITEZ 87F and ical normalization.	tio of $D^+ \rightarrow K^-$ \pm 0.16 and uses the 3). measures $\sigma(e^+e^- \rightarrow MARK-3$ (ADLER 3) asures $\sigma(e^+e^- \rightarrow MARK-3)$ (ADLER 3) HARK-3 (ADLER 3)	$\psi_{\pi}^{+} \pi^{+} \pi^{+}$ eir ab $\rightarrow \psi(388C) \psi(388C) \psi(388C) \psi(3900)$	+ and solute m (3770)) value of 8770)) × value of the bran	$D^0 \rightarrow K^- \pi^+$ branching neasurement of the $D^0 \rightarrow K^- \pi^+$ branching fraction to be $\sigma = 4.2 \pm 0.6 \pm 0.3$ nb. K^- branching fraction to be $\sigma = 4.2 \pm 0.6 \pm 0.3$ nb. $K^- = 4.2 \pm 0.6 \pm 0.3$ nb. Inching fraction by topolog-
$\Gamma(\overline{K}^*(892)^0\pi^+)/\Gamma(K^-\pi^+)$	$\pi^+)$			Г ₇₃ /Г ₃₄
Unseen decay modes of th	$e \frac{7}{K^*}(892)^0$ are inc	luded		
VALUE CL%	DOCUMENT ID		TECN	COMMENT
0.212±0.016 OUR FIT				
0.210±0.015 OUR AVERAGE				
$0.206 \pm 0.009 \pm 0.014$	FRABETTI	94G	E687	$\gamma \text{Be, } E_{\gamma} \approx 220 \text{ GeV}$
$0.255 \pm 0.014 \pm 0.050$		93 01 D	E691	γ Be 90–260 GeV
$0.21 \pm 0.00 \pm 0.00$		91B		a^+a^- 3.77 CeV
$0.20 \pm 0.02 \pm 0.11$	ADLER ng data for average	01 s fits	limits	etc • • •
		3, IIC3		+ - 2.771 C V
<0.053 90	SCHINDLER	81	MRK2	e'e 3.771 GeV
$\Gamma(\overline{K}_0^*(1430)^0\pi^+)/\Gamma(K^-\pi^+)$	(π^{+})			Г ₈₂ /Г ₃₄
Unseen decay modes of th	$\overline{K}_{0}^{*}(1430)^{0}$ are in	clude	d.	
VALUE	DOCUMENT ID		TECN	COMMENT
0.41 \pm 0.04 OUR AVERAGE				_
$0.458 \!\pm\! 0.035 \!\pm\! 0.094$	FRABETTI	94 G	E687	$\gamma{ m Be}$, \overline{E}_\gammapprox 220 GeV
$0.400\!\pm\!0.031\!\pm\!0.027$	ANJOS	93	E691	$\gamma\mathrm{Be}$ 90–260 GeV
$\Gamma(\overline{K}^{*}(1680)^{0}\pi^{+})/\Gamma(K^{-}\pi^{+})$	-π+)			[83/[34
Unseen decay modes of th	$e \frac{V}{K^*(1680)^0}$ are in	clude	Ч	
VALUE	DOCUMENT ID		TECN	COMMENT
0.160 ± 0.032 OUR AVERAGE	Error includes scale	facto	or of 1.1	
$0.182\!\pm\!0.023\!\pm\!0.028$	FRABETTI	94 G	E687	$\gamma{ m Be}$, \overline{E}_\gammapprox 220 GeV
$0.113\!\pm\!0.015\!\pm\!0.050$	ANJOS	93	E691	$\gamma \operatorname{Be} 90-260 \ \operatorname{GeV}$
$\Gamma(\kappa^{-}\pi^{+}\pi^{+} \text{ nonresonant})/VALUE}$	Γ(K⁻π⁺π⁺) DOCUMENT ID		TECN	Г ₃₈ /Г ₃₄
0.95 ±0.07 OUR AVERAGE				
$0.998\!\pm\!0.037\!\pm\!0.072$	FRABETTI	94 G	E687	$\gamma{ m Be}$, \overline{E}_\gammapprox 220 GeV
$0.838\!\pm\!0.088\!\pm\!0.275$	ANJOS	93	E691	γ Be 90–260 GeV
$0.79 \ \pm 0.07 \ \pm 0.15$		87	MBK3	e^+e^- 3 77 GeV
	ADLLIN	01	WILLING.	

 $\Gamma(\overline{K}^0\pi^+\pi^0)/\Gamma_{\text{total}}$ Γ<u>39</u>/Γ EVTS DOCUMENT ID TECN COMMENT 0.097±0.030 OUR FIT Error includes scale factor of 1.1. 0.107 ± 0.029 OUR AVERAGE 88C MRK3 e^+e^- 3.77 GeV $0.102\!\pm\!0.025\!\pm\!0.016$ 159 ADLER ³⁸ SCHINDLER 81 MRK2 e^+e^- 3.771 GeV 10 0.19 ± 0.12 ³⁸SCHINDLER 81 (MARK-2) measures $\sigma(e^+e^- \rightarrow \psi(3770)) \times$ branching fraction to be 0.78 \pm 0.48 nb. We use the MARK-3 (ADLER 88C) value of $\sigma = 4.2 \pm 0.6 \pm 0.3$ nb. $\Gamma(\overline{K}^{0}\rho^{+})/\Gamma(\overline{K}^{0}\pi^{+}\pi^{0})$ $\Gamma_{40} / \Gamma_{39}$ <u>VA</u>LUE DOCUMENT ID TECN COMMENT 87 MRK3 e^+e^- 3.77 GeV $0.68 \pm 0.08 \pm 0.12$ ADLER $\Gamma(\overline{K}^*(892)^0\pi^+)/\Gamma(\overline{K}^0\pi^+\pi^0)$ Γ_{73}/Γ_{39} Unseen decay modes of the $\overline{K}^*(892)^0$ are included. VALUE DOCUMENT ID <u>TECN</u> <u>COMMENT</u> 0.20±0.06 OUR FIT 87 MRK3 e^+e^- 3.77 GeV $0.57 \pm 0.18 \pm 0.18$ ADLER $\Gamma(\overline{K}^0\pi^+\pi^0 \text{ nonresonant})/\Gamma(\overline{K}^0\pi^+\pi^0)$ Γ_{42}/Γ_{39} <u>VA</u>LUE DOCUMENT ID TECN COMMENT $0.13 \pm 0.07 \pm 0.08$ 87 MRK3 e^+e^- 3.77 GeV ADLER $\Gamma(\kappa^{-}\pi^{+}\pi^{+}\pi^{0})/\Gamma_{\text{total}}$ Γ₄₃/Γ VALUE DOCUMENT ID TECN COMMENT EVTS 0.064 ± 0.011 OUR FIT $0.058 {\pm} 0.012 {\pm} 0.012$ 142 COFFMAN 92B MRK3 e⁺e⁻ 3.77 GeV • • • We do not use the following data for averages, fits, limits, etc. • • • $0.034\substack{+\,0.056\\-\,0.070}$ ³⁹ BARLAG 92C ACCM π^- Cu 230 GeV $0.022^{+0.047}_{-0.006}\!\pm\!0.004$ ³⁹ AGUILAR-... 1 87F HYBR πp, pp 360, 400 GeV $0.063^{+0.014}_{-0.013}{\pm}0.012$ 175 BALTRUSAIT...86E MRK3 See COFFMAN 92B ³⁹AGUILAR-BENITEZ 87F and BARLAG 92C compute the branching fraction by topological normalization. $\Gamma(K^{-}\pi^{+}\pi^{+}\pi^{0})/\Gamma(K^{-}\pi^{+}\pi^{+})$ Γ_{43}/Γ_{34} VALUE DOCUMENT ID TECN COMMENT 0.71±0.12 OUR FIT $0.76 \pm 0.11 \pm 0.12$ 91 ANJOS 92C E691 γ Be 90–260 GeV • • We do not use the following data for averages, fits, limits, etc. • • • $0.69\!\pm\!0.10\!\pm\!0.16$ ANJOS 89E E691 See ANJOS 92C $0.57 \substack{+0.65 \\ -0.17}$ 83B HYBR $\pi^- p$, 360 GeV 1 AGUILAR-... $\Gamma(\overline{K}^*(892)^0 \rho^+ \text{total}) / \Gamma(K^- \pi^+ \pi^+ \pi^0)$ Γ_{74}/Γ_{43} Unseen decay modes of the $\overline{K}^*(892)^0$ are included. <u>DOCUMENT I</u>D VALUE TECN COMMENT ⁴⁰ ANJOS $0.33 \pm 0.165 \pm 0.12$ 92C E691 γ Be 90–260 GeV 40 See, however, the next entry, where the two experiments disagree completely. HTTP://PDG.LBL.GOV Page 18 Created: 6/29/1998 12:20

I (<i>K</i> ⁺ (892) ^o ρ ⁺ S-w	ave)/Г(<i>К</i>	$-\pi^{+}\pi^{+}\pi^{0}$		-	Г	75/F43
Unseen decay mo	odes of the <i>k</i>	(*(892) ⁰ are incl	uded.	The two	experiments here	disagre
VALUE		DOCUMENT ID		TECN	COMMENT	
0.26 ±0.25 OUR AV	ERAGE E	rror includes scale	e facto	or of 3.1		
$0.15 \pm 0.075 \pm 0.045$		ANJOS	920	E691	γ Be 90–260 GeV	,
$0.833 \pm 0.116 \pm 0.165$		COFFMAN	92B	MRK3	e^+e^- 3.77 GeV	
$\Gamma(\overline{K}^{*}(892)^{0}\rho^{+}P_{-w})$	ave)/Γ _{tota}	al de la constante de la consta				Г ₇₆ /Г
Unseen decay m	odes of the	$\overline{K}^*(892)^0$ are ind	cluded			
VALUE	<u>CL%</u>	DOCUMENT ID		TECN	<u>COMMENT</u>	
<0.001	90	ANJOS	92C	E691	$\gamma{ m Be}$ 90–260 GeV	,
• • • We do not use t	he following	; data for average	es, fits	, limits,	etc. • • •	
<0.005	90	COFFMAN	92 B	MRK3	e^+e^- 3.77 GeV	
$\Gamma(\overline{K}^{*}(892)^{0}\rho^{+}D_{-w})$	/ave)/Γ(<i>K</i>	$(-\pi^{+}\pi^{+}\pi^{0})$			Г	77/Г43
Unseen decay me	odes of the	$\overline{K}^*(892)^0$ are ind	cluded			
VALUE		DOCUMENT ID		TECN	COMMENT	
0.15±0.09±0.045		ANJOS	9 2C	E691	$\gamma \mathrm{Be}$ 90–260 GeV	,
Г(К *(892) ⁰ р ⁺ <i>D</i> -w	ave longit	udinal)/Г _{total}				Г ₇₈ /Г
Unseen decay m	odes of the	K *(892) ⁰ are ind	cluded	•		
VALUE	<u>CL%</u>	DOCUMENT ID		TECN	COMMENT	
<0.007	90	COFFMAN	92 B	MRK3	e ⁺ e ⁻ 3.77 GeV	
$\Gamma(\overline{K}_1(1400)^0\pi^+)/l$	Г (К ⁻ π ⁺ 1	π ⁺ π ⁰)			Г	80/F43
Unseen decay m	odes of the	K ₁ (1400) ⁰ are ii	nclude	d.		
VALUE		DOCUMENT ID		TECN	COMMENT	
0.77 ± 0.20 OUR FIT $0.907 \pm 0.218 \pm 0.180$		COFFMAN	92 B	MRK3	e ⁺ e ⁻ 3.77 GeV	
					_	
$\Gamma(K^-\rho^+\pi^+ \text{total})/$	$\Gamma(K^{-}\pi^{+})$	$\pi^{+}\pi^{0}$)			Г	88/Г43
$\Gamma(K^-\rho^+\pi^+\text{total})/$	$\Gamma(K^{-}\pi^{+})^{0}a^{+}$	$\pi^+\pi^0$)	try giv	es the s	Pecifically 3-body	
$\Gamma(K^- \rho^+ \pi^+ \text{total}))$ This includes \overline{K}^*	$\Gamma(K^{-}\pi^{+})^{(892)^{0}\rho^{+}},$	$\pi^+\pi^0$) etc. The next en	try giv	ves the s TECN	F pecifically 3-body COMMENT	88/ Г 43 fraction
$\frac{\Gamma(K^-\rho^+\pi^+\text{total})}{\text{This includes }\overline{K}^*}$ $\frac{VALUE}{0.48\pm0.13\pm0.09}$	$\Gamma(K^{-}\pi^{+})^{(892)^{0}\rho^{+}}$	π⁺π⁰) etc. The next en <u>DOCUMENT ID</u> ANJOS	try giv 92c	ves the s <u>TECN</u> E691	Γ pecifically 3-body <u>COMMENT</u> γBe 90–260 GeV	fraction
$\Gamma(K^{-}\rho^{+}\pi^{+}\text{total})/$ This includes \overline{K}^{*} <u>VALUE</u> 0.48±0.13±0.09 $\Gamma(K^{-}\rho^{+}\pi^{+}3\text{-body})$	/Γ(<i>K</i> ⁻ π ⁺ (892) ⁰ ρ ⁺ , 	$\pi^+\pi^0$) <i>etc.</i> The next en <u>DOCUMENT ID</u> ANJOS $\pi^+\pi^+\pi^0$)	itry giv 92C	ves the s <u>TECN</u> E691	F pecifically 3-body <u>COMMENT</u> γ Be 90–260 GeV	88/ Г 43 fraction 89/ Г 43
$\Gamma(K^{-}\rho^{+}\pi^{+}\text{total})/$ This includes \overline{K}^{*} VALUE 0.48±0.13±0.09 $\Gamma(K^{-}\rho^{+}\pi^{+}3\text{-body})$ VALUE	/Γ(Κ ⁻ π ⁺ (892) ⁰ ρ ⁺ , /)/Γ(Κ ⁻ π	$\pi^{+}\pi^{0}$ etc. The next en <u>DOCUMENT ID</u> ANJOS $\pi^{+}\pi^{+}\pi^{0}$ <u>DOCUMENT</u> ID	92C	ves the s <u>TECN</u> E691 <u>TECN</u>	Γ pecifically 3-body <u>COMMENT</u> γ Be 90–260 GeV Γ <u>COMMENT</u>	88/Г43 fraction 89/Г43
$\Gamma(K^{-}\rho^{+}\pi^{+}\text{total})/$ This includes \overline{K}^{*} VALUE 0.48±0.13±0.09 $\Gamma(K^{-}\rho^{+}\pi^{+}3\text{-body})$ VALUE 0.17 ±0.06 OUR AV	/Γ(<i>K</i> ⁻ π ⁺ (892) ⁰ ρ ⁺ , /)/Γ(<i>K</i> ⁻ π ERAGE	$\pi^+ \pi^0$) etc. The next en <u>DOCUMENT ID</u> ANJOS $\pi^+ \pi^+ \pi^0$) <u>DOCUMENT ID</u>	92c	ves the s <u>TECN</u> E691 <u>TECN</u>	Γ pecifically 3-body <u>COMMENT</u> γ Be 90–260 GeV Γ <u>COMMENT</u>	88/Γ43 fraction 89/Γ43
$\Gamma(K^-\rho^+\pi^+\text{total})/$ This includes $\overline{K^*}$ VALUE 0.48±0.13±0.09 $\Gamma(K^-\rho^+\pi^+3\text{-body})$ VALUE 0.17 ±0.06 OUR AV 0.18 ±0.08 ±0.04	/Γ(Κ ⁻ π ⁺ (892) ⁰ ρ ⁺ , /)/Γ(Κ ⁻ π ERAGE	$\pi^{+}\pi^{0}$ etc. The next en <u>DOCUMENT ID</u> ANJOS $\pi^{+}\pi^{+}\pi^{0}$ <u>DOCUMENT ID</u> ANJOS	92c	res the s <u>TECN</u> E691 <u>TECN</u> E691	Γ pecifically 3-body <u>COMMENT</u> γ Be 90–260 GeV <u>COMMENT</u> γ Be 90–260 GeV	88/Γ43 fraction 89/Γ43
$ \Gamma(K^- \rho^+ \pi^+ \text{total}) / This includes \overline{K}^* VALUE 0.48±0.13±0.09 Γ(K^- ρ^+ π^+ 3-body VALUE 0.17 ±0.06 OUR AV 0.18 ±0.08 ±0.04 0.159±0.065±0.060 $	/Γ(<i>K</i> ⁻ π ⁺ (892) ⁰ ρ ⁺ , /)/Γ(<i>K</i> ⁻ π ERAGE	$\pi^+\pi^0$) etc. The next en <u>DOCUMENT ID</u> ANJOS $\pi^+\pi^+\pi^0$) <u>DOCUMENT ID</u> ANJOS COFFMAN	92C 92C 92C	res the s TECN E691 <u>TECN</u> E691 MRK3	Γ pecifically 3-body $\underline{COMMENT}$ γ Be 90–260 GeV Γ $\underline{COMMENT}$ γ Be 90–260 GeV e^+e^- 3.77 GeV	88/Γ43 fraction 89/Γ43
$\Gamma(K^{-}\rho^{+}\pi^{+}\text{total})/_{\text{This includes }\overline{K}^{*}}$ $\frac{VALUE}{0.48\pm0.13\pm0.09}$ $\Gamma(K^{-}\rho^{+}\pi^{+}3\text{-body})$ $\frac{VALUE}{0.17\pm0.06} \text{ OUR AV}$ $0.18\pm0.08\pm0.04$ $0.159\pm0.065\pm0.060$ $\Gamma(\overline{K}^{*}(892)^{0}\pi^{+}\pi^{0}\text{t})$	$\frac{\langle \Gamma(K^{-}\pi^{+})^{(892)^{0}\rho^{+}}}{\langle (192)^{0}\rho^{+}}$ $\frac{\langle (192)^{0}\rho^{+}}{\langle (100)^{0}\rho^{+}}$ $\frac{\langle (100)^{0}\rho^{+}}{\langle (100)^{0}\rho^{+}}$ $\frac{\langle (100)^{0}\rho^{+}}{\langle (100)^{0}\rho^{+}}$	$\pi^{+}\pi^{0}$ etc. The next en <u>DOCUMENT ID</u> ANJOS $\pi^{+}\pi^{+}\pi^{0}$ <u>DOCUMENT ID</u> ANJOS COFFMAN $\pi^{-}\pi^{+}\pi^{+}\pi^{0}$	92C 92C 92C 92B	res the s <u>TECN</u> E691 <u>TECN</u> E691 MRK3	F pecifically 3-body $\underline{COMMENT}$ γ Be 90–260 GeV COMMENT γ Be 90–260 GeV e^+e^- 3.77 GeV	88/ Г 43 fraction 89/ Г 43
$ \Gamma(K^- \rho^+ \pi^+ \text{total}) / This includes \overline{K}^* $ <u>VALUE</u> 0.48±0.13±0.09 Γ(K^- ρ^+ π^+ 3-body <u>VALUE</u> 0.17 ±0.06 OUR AV 0.18 ±0.08 ±0.04 0.159±0.065±0.060 Γ(\overline{K}^*(892)^0 π^+ π^0 t This includes \overline{K}^*	$\frac{\langle \Gamma(K^{-}\pi^{+}, K^{-}\pi^{+}) \rangle}{\langle (892)^{0}\rho^{+}, K^{-}\pi^{-}}$ $\frac{\langle I \rangle}{ I } = \frac{\langle I \rangle}{ I$	$\pi^{+}\pi^{0})$ etc. The next en <u>DOCUMENT ID</u> ANJOS $\pi^{+}\pi^{+}\pi^{0})$ <u>DOCUMENT ID</u> ANJOS COFFMAN $(\pi^{-}\pi^{+}\pi^{+}\pi^{0})$ etc. The next	92c 92c 92c 92c 92b two e	res the s <u>TECN</u> E691 <u>TECN</u> E691 MRK3 ntries gi	F pecifically 3-body $\underline{COMMENT}$ γ Be 90–260 GeV $\underline{COMMENT}$ γ Be 90–260 GeV e^+e^- 3.77 GeV F ve the specifically	88/ Г 43 fraction 89/ Г 43 84/ Г 43
$ \Gamma(K^- ρ^+ π^+ \text{total}) / This includes \overline{K}^* VALUE 0.48±0.13±0.09 Γ(K^- ρ^+ π^+ 3-body VALUE 0.17 ±0.06 OUR AV 0.18 ±0.08 ±0.04 0.159±0.065±0.060 Γ(\overline{K}^*(892)^0 π^+ π^0 t This includes \overline{K}^* fraction. Unseen $	$\frac{\langle \Gamma(K^{-}\pi^{+}), (892)^{0}\rho^{+}, (892)^{0}\rho^{+}, (K^{-}\pi)}{\mathbf{ERAGE}}$ otal)/$\Gamma(K^{*}(892)^{0}\rho^{+}, (892)^{0}\rho^{+}, (892)$	$\pi^+\pi^0$) etc. The next en <u>DOCUMENT ID</u> ANJOS $\pi^+\pi^+\pi^0$) <u>DOCUMENT ID</u> ANJOS COFFMAN $\pi^-\pi^+\pi^+\pi^0$) etc. The next es of the \overline{K}^* (892	92C 92C 92C 92B two e	res the s <u>TECN</u> E691 <u>TECN</u> E691 MRK3 ntries gi	Γ pecifically 3-body $\underline{COMMENT}$ γ Be 90–260 GeV $\underline{COMMENT}$ γ Be 90–260 GeV e^+e^- 3.77 GeV Γ five the specifically d.	88/Γ43 fraction 89/Γ43 84/Γ43
$ \Gamma(K^- ρ^+ π^+ \text{total}) / This includes \overline{K}^* VALUE 0.48±0.13±0.09 \Gamma(K^- ρ^+ π^+ 3-body VALUE) 0.17 ±0.06 OUR AV 0.18 ±0.08 ±0.04 0.159±0.065±0.060 \Gamma(\overline{K}^*(892)^0 π^+ π^0 t) This includes \overline{K}^* fraction. Unseen VALUE VALUE $	$\sqrt{\Gamma(K^{-}\pi^{+}, (892)^{0}\rho^{+}, (892)^{0}\rho^{+}, (K^{-}\pi^{+}, K^{-}\pi^{+})}$ Fotal)/$\Gamma(K^{*}(892)^{0}\rho^{+}, (892)^{0}\rho^{+}, (K^{-}\pi^{+})$	$\pi^{+}\pi^{0}$ etc. The next en <u>DOCUMENT ID</u> ANJOS $\pi^{+}\pi^{+}\pi^{0}$ <u>DOCUMENT ID</u> ANJOS COFFMAN $\pi^{-}\pi^{+}\pi^{+}\pi^{0}$ etc. The next es of the $\overline{K}^{*}(892)$ <u>DOCUMENT ID</u>	92C 92C 92C 92B two e	res the s <u>TECN</u> E691 <u>TECN</u> E691 MRK3 MRK3 include <u>TECN</u>	Γ pecifically 3-body COMMENT γ Be 90–260 GeV COMMENT γ Be 90–260 GeV e^+e^- 3.77 GeV e^+e^- 3.77 GeV Γ ive the specifically d. COMMENT	88/Γ43 fraction 89/Γ43 84/Γ43

$\Gamma(\overline{K}^{*}(892)^{0}\pi^{+}\pi^{0}3)$	-body)/Γ _t	otal			Г ₈₅ /Г
Unseen decay mo	des of the P	DOCUMENT ID	cluded	TECN	COMMENT
• • • We do not use th	ne following	data for average	s, fits	, limits,	etc. • • •
<0.008	90 4	¹¹ COFFMAN	92 B	MRK3	e ⁺ e ⁻ 3.77 GeV
⁴¹ See, however, the n	ext entry: A	NJOS 92C sees	a larg	e signal	in this channel.
$\Gamma(\overline{K}^*(892)^0\pi^+\pi^03$	-body)/Γ <u>(</u>	$(K^{-}\pi^{+}\pi^{+}\pi^{0})$)		Γ ₈₅ /Γ ₄₃
Unseen decay mo	des of the <i>l</i>	۲*(892) ⁰ are inc	luded	TECN	COMMENT
0.66±0.09±0.17		ANJOS	92C	E691	γ Be 90–260 GeV
$\Gamma(K^*(892)^-\pi^+\pi^+)$	3-body)/Г	$K^{-}\pi^{+}\pi^{+}\pi^{0}$))		Γ ₈₇ /Γ ₄₃
Unseen decay mo	des of the <i>h</i>	、 √*(892) [—] are in	cluded	ł.	
VALUE	<u> </u>	DOCUMENT ID		TECN	COMMENT
0.32 ± 0.14 OUR FIT	Error includ	es scale factor o	f 1.1.	F601	
0.24±0.12±0.09		ANJO5	92C	E091	γ De 90–200 Gev
$\Gamma(K^-\pi^+\pi^+\pi^0 \operatorname{non})$	resonant)	/Γ _{total}			Г ₅₁ /Г
VALUE	<u>CL%</u>	DOCUMENT ID		TECN	COMMENT
$\bullet \bullet \bullet$ We do not use the	ne following	data for average	s, fits	, limits,	etc. • • •
<0.002	90 4	¹² ANJOS	9 2C	E691	$\gamma\mathrm{Be}$ 90–260 GeV
⁴² Whereas ANJOS 92 the next entry.	2C finds no s	signal here, COF	FMA	N 92B f	inds a fairly large one; see
$\Gamma(\kappa^-\pi^+\pi^+\pi^0 \text{ non})$	resonant)	$/\Gamma(K^-\pi^+\pi^+$	π ⁰)		Γ ₅₁ /Γ ₄₃
<u>VALUE</u>		DOCUMENT ID	025	<u>TECN</u>	$\frac{COMMENT}{2} = 2.77 \text{ GeV}$
0.104±0.070±0.050		COFFMAN	92B	MIKU2	e'e 5.77 Gev
$\Gamma(\overline{K}^0\pi^+\pi^+\pi^-)/\Gamma_t$	otal				Г ₅₂ /Г
VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.070 ± 0.009 OUR FIT					
$0.066 \pm 0.015 \pm 0.005$	168	ADI FR	880	MRK3	e^+e^- 3.77 GeV
0.12 ± 0.05	21 4	¹³ SCHINDLER	81	MRK2	e^+e^- 3.771 GeV
$\bullet \bullet \bullet$ We do not use the	ne following	data for average	s, fits	, limits,	etc. • • •
$0.042\substack{+0.019\\-0.017}$	4	¹⁴ BARLAG	9 2C	ACCM	π^- Cu 230 GeV
$0.243^{+0.064}_{-0.041}{\pm}0.041$	11 4	¹⁴ AGUILAR	87F	HYBR	π p , pp 360, 400 GeV
43 SCHINDLER 81 (M 0.51 \pm 0.08 nb. We 44 AGUILAR-BENITEZ ical normalization.	ARK-2) mea use the MA Z 87F and B	asures σ(e ⁺ e ⁻ ARK-3 (ADLER ARLAG 92C con	$ ightarrow \psi($ 88C) v npute	(3770)) value of the brai	\times branching fraction to be $\sigma=4.2\pm0.6\pm0.3$ nb. nching fraction by topolog-
$\Gamma(\overline{K}^{0}\pi^{+}\pi^{+}\pi^{-})/\Gamma($	$(K^-\pi^+\pi^+)$	⁺)			Г ₅₂ /Г ₃₄
VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.78±0.10 OUR FIT 0.77±0.07±0.11	229	ANJOS	92 C	E691	$\gamma\mathrm{Be}$ 90–260 GeV

$\Gamma(\overline{K^0}a_1(1260)^+)/1$	Γ(Κ ⁰ π [⊣]	$(\pi^{+}\pi^{-})$		Γ ₇₁ /Γ ₅₂
Unseen decay m	odes of t	he $a_1(1260)^+$ are in	cluded.	
		<u>DOCUMENT ID</u>	<u>TECN</u>	COMMENT
1.15 ± 0.19 OUR AV	ENAGE		02c F601	 ∞Be 90–260 GeV
$1.00 \pm 0.20 \pm 0.40$ $1.078 \pm 0.114 \pm 0.140$		COFFMAN	928 MRK3	e^+e^- 3 77 GeV
1.070 ± 0.114 ± 0.140			520 1011115	
$\Gamma(\overline{K}^{0}a_{2}(1320)^{+})/$	total			Г ₇₂ /Г
Unseen decay m	odes of t	he $a_2(1320)^+$ are in	cluded.	
VALUE	<u> </u>	DOCUMENT ID		COMMENT
	90 the follow	ANJOS	92C E691	γ Be 90–260 GeV
• • • we do not use			s, mus, mmus,	
<0.008	90	COFFMAN	928 MRK3	<i>e</i> ⊤ <i>e</i> [−] 3.77 GeV
$\Gamma(\overline{K}_1(1270)^0\pi^+)/$	Γ _{total}			Г ₇₉ /Г
Unseen decay m	odes of t	he $\overline{\kappa}_1(1270)^0$ are in	cluded.	
VALUE	<u>CL%</u>	DOCUMENT ID	TECN	COMMENT
<0.007	90	ANJOS	92C E691	$\gamma{ m Be}$ 90–260 GeV
• • • We do not use	the follow	ing data for averages	s, fits, limits,	etc. • • •
<0.011	90	COFFMAN	928 MRK3	e^+e^- 3.77 GeV
$\Gamma(\overline{K}_{1}(1400)^{0}\pi^{+})/$	Γ _{total}			Г ₈₀ /Г
Unseen decay m	odes of t	he $\overline{K}_1(1400)^0$ are in	cluded.	,
VALUE	<u>CL%</u>	DOCUMENT ID	TECN	COMMENT
• • • We do not use	the follow	ing data for averages	s, fits, limits,	etc. • • •
<0.009	90	⁴⁵ ANJOS	92C E691	γ Be 90–260 GeV
45 ANIOS 92C SEES	no evid	ence for $\overline{K}_1(1400)$	0_{π^+} in eith	her the $\overline{K}^0 \pi^+ \pi^+ \pi^-$ o
$K^{-}\pi^{+}\pi^{+}\pi^{0}$ cha fraction to be large	annels, w e; see the	hereas COFFMAN 9 next entry.	2B finds the	$\overline{K}_1(1400)^0 \pi^+$ branching
$\Gamma(\overline{K}(1400)0 - +)/$	г <i>(Т</i> 20	+_+)		F / F
$(\Lambda_1(1400)^{\circ}\pi^{\circ})/$	ι (Λ °π	$\pi^{-}\pi^{-}\pi^{-}$		1 80/1 52
Unseen decay m	odes of t	he $K_1(1400)^\circ$ are in	cluded.	COMMENT
0.70 + 0.17 OUR FI	г	DOCUMENTID	<u>TECN</u>	COMMENT
$0.623 \pm 0.106 \pm 0.180$	-	COFFMAN	92B MRK3	e ⁺ e ⁻ 3.77 GeV
$\Gamma(\overline{K}^{*}(1410)^{0}\pi^{+})/$	Γ _{total}			Г ₈₁ /Г
Unseen decay m	odes of t	he $\overline{K}^*(1410)^0$ are in	cluded.	
VALUE	<u>CL%</u>	DOCUMENT ID	TECN	COMMENT
<0.007	90	COFFMAN	92B MRK3	e ⁺ e ⁻ 3.77 GeV
$\Gamma(K^{*}(802)) = \pi^{+}\pi^{+}$	• total) /			Гос /Г-с
		$(\mathbf{x}^{*}, \mathbf{y}^{*}, \mathbf{x}^{*}, \mathbf{y}^{*}) = \mathbf{y}^{*}$		1 86/1 52
Unseen decay m	uaes of t	ne n' (892) are inc DOCLIMENT ID	TECN	COMMENT
	the follow	ing data for average	s fits limits	etc. • • •
• • • We do not use t				
• • • We do not use to 41 ± 0.14	1 /			

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$\Gamma(K^*(892)^-\pi^+\pi^+)$	3-body)/l	r_{total}	مار ، ما م ما			Г ₈₇ /Г
VALUE	CL%	DOCUMENT ID	.iuded.	TECN	COMMENT	
0.020±0.009 OUR F	IT					
• • • We do not use the	ne following	, data for average	es, fits,	limits,	etc. ● ● ●	
<0.013	90	COFFMAN	92B	MRK3	$e^+ e^-$ 3.77 GeV	V
$\Gamma(K^*(892)^-\pi^+\pi^+)$	3-body) /l	$\Gamma(\overline{K}^0\pi^+\pi^+\pi^-$	-)			Г ₈₇ /Г ₅₂
VALUE		DOCUMENT ID		TECN	COMMENT	
0.29±0.13 OUR FIT 0.50±0.09±0.21	Error inclue	des scale factor o ANJOS	f 1.1. 92C E	E691	$\gamma\mathrm{Be}$ 90–260 Ge	V
$\Gamma(\overline{K}^0 \rho^0 \pi^+ \text{total}) / \Gamma$	$(\overline{K}^0\pi^+\pi$	$^{+}\pi^{-}$)				Γοο /Γες
This includes \overline{K}^0 tion.	a ₁ (1260) ⁺	The next two	entries	give th	e specifically 3-b	ody reac-
VALUE	<u>CL%</u>	DOCUMENT ID		TECN	COMMENT	
$0.60 \pm 0.10 \pm 0.17$	90	ANJOS	92C E	E691	γ Be 90–260 Ge	V
$\Gamma(\overline{K}^0 \rho^0 \pi^+ 3\text{-body})$	/Γ _{total}					Γο1/Γ
VALUE	<u>CL%</u>	DOCUMENT ID		TECN	COMMENT	J1/
$\bullet \bullet \bullet$ We do not use the	ne following	data for average	es, fits,	limits,	etc. • • •	
<0.004	90	COFFMAN	92b I	MRK3	e^+e^- 3.77 GeV	V
$\Gamma(\overline{K}^0 \rho^0 \pi^+ \text{3-body})$	/Γ(Κ ⁰ π ⁺	$\pi^+\pi^-)$				Г ₉₁ /Г ₅₂
		DOCUMENT ID	0.00	<u>TECN</u>	<u>COMMENT</u>	
0.07±0.04±0.00		ANJUS	92C I	-091	γ Be 90–260 Ge	V
$\Gamma(\overline{K}^0 f_0(980)\pi^+)/\Gamma$	total					Г ₉₂ /Г
VALUE	<u>CL%</u>	DOCUMENT ID		TECN	COMMENT	
<0.005	90	ANJOS	92C E	E691	γ Be 90–260 Ge	V
$\Gamma(\overline{K}^0\pi^+\pi^+\pi^- \operatorname{non}$	resonant)	$/\Gamma(\overline{K}^0\pi^+\pi^+)$	π-)			$\Gamma_{58} / \Gamma_{52}$
VALUE	′	DOCUMENT ID		TECN	COMMENT	
0.12±0.06 OUR AVE	RAGE		000	-601	D- 00 260 C-	\ <i>\</i>
$0.10 \pm 0.04 \pm 0.00$ $0.17 \pm 0.056 \pm 0.100$		COFFMAN	92C I 92B I	MRK3	$\gamma \text{ Be } 90-200 \text{ Ge}$	v V
			520 1			
$\Gamma(K^-\pi^+\pi^+\pi^-)$)/Г _{total}			TECH	601415NT	Г ₅₉ /Г
VALUE		<u>DOCUMENT ID</u>	s fits	limits		
-0.0012	ic following		.5, 1115,			
-0.0037 - 0.0010		TO BARLAG	92C A	ACCM	π Cu 230 GeV	/
⁴⁶ BARLAG 92C comp	utes the br	anching fraction	using to	opologi	cal normalizatior	I.
$\Gamma(K^-\pi^+\pi^+\pi^+\pi^-)$)/Γ(<i>K</i> ⁻ π	$(+\pi^{+})$				Γ50/Γ34
VALUE	<u>EVTS</u>	DOCUMENT ID		TECN	COMMENT	
0.080±0.009 OUR FIT						
0.077 + 0.008 + 0.010	230	FRARETTI	97c F	-687	$\gamma \text{Be} \overline{F} \simeq \gamma$	0 GeV
0.09 + 0.01 + 0.01	113	ANJOS	90n F	=691	Photoproductio	n
	110	,	5001			
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 $\Gamma(\overline{K}^{*}(892)^{0}\pi^{+}\pi^{+}\pi^{-})/\Gamma(K^{-}\pi^{+}\pi^{+}\pi^{+}\pi^{-})$ Γ_{93}/Γ_{59} Unseen decay modes of the $\overline{K}^*(892)^0$ are included. <u>VALUE</u> DOCUMENT ID <u>TECN</u> <u>COMMENT</u> **1.1 ±0.4 OUR FIT** Error includes scale factor of 1.8. $1.25 \pm 0.12 \pm 0.23$ ANJOS 90D E691 Photoproduction $\Gamma(\overline{K}^{*}(892)^{0}\rho^{0}\pi^{+})/\Gamma(K^{-}\pi^{+}\pi^{+})$ Γ_{94}/Γ_{34} Unseen decay modes of the $\overline{K}^*(892)^0$ are included. DOCUMENT ID TECN COMMENT VALUE $0.032 \stackrel{+0.019}{-0.017}$ OUR FIT Error includes scale factor of 1.8. $\gamma\,{
m Be},\,\overline{E}_\gamma~pprox~$ 200 GeV $0.023 {\pm} 0.010 {\pm} 0.006$ 97C E687 FRABETTI $\Gamma(\overline{K}^{*}(892)^{0}\rho^{0}\pi^{+})/\Gamma(\overline{K}^{*}(892)^{0}\pi^{+}\pi^{+}\pi^{-})$ Γ_{04}/Γ_{03} VALUE DOCUMENT ID <u>TECN</u> <u>COMMENT</u> **0.36**+0.24 **OUR FIT** Error includes scale factor of 1.8. $0.75 \pm 0.17 \pm 0.19$ ANJOS 90D E691 Photoproduction $\Gamma(\overline{K}^*(892)^0\pi^+\pi^+\pi^-\operatorname{no-}\rho)/\Gamma(K^-\pi^+\pi^+)$ Γ_{95}/Γ_{34} Unseen decay modes of the $\overline{K}^*(892)^0$ are included. VALUE DOCUMENT ID TECN COMMENT $0.048 \!\pm\! 0.015 \!\pm\! 0.011$ 97C E687 γ Be, $\overline{E}_{\gamma} \approx 200$ GeV FRABETTI $\Gamma(K^-\rho^0\pi^+\pi^+)/\Gamma(K^-\pi^+\pi^+)$ Γ_{63}/Γ_{34} VALUE <u>DOCUMENT I</u>D TECN COMMENT 97C E687 γ Be, $\overline{E}_{\gamma} \approx 200$ GeV $0.034 \!\pm\! 0.009 \!\pm\! 0.005$ FRABETTI $\Gamma(K^-\pi^+\pi^+\pi^+\pi^- \text{ nonresonant})/\Gamma(K^-\pi^+\pi^+)$ Γ_{64}/Γ_{34} VALUE DOCUMENT ID TECN COMMENT 97C E687 γ Be, $\overline{E}_{\gamma}~pprox$ 200 GeV < 0.026 90 FRABETTI $\Gamma(K^{-}\pi^{+}\pi^{+}\pi^{0}\pi^{0})/\Gamma_{\text{total}}$ Γ_{65}/Γ <u>VAL</u>UE DOCUMENT ID TECN COMMENT **EVTS** $0.022^{+0.047}_{-0.008}{\pm}0.004$ ⁴⁷ AGUILAR-... 1 87F HYBR πp, pp 360, 400 GeV • • • We do not use the following data for averages, fits, limits, etc. • • • 47 BARLAG 92C ACCM π^- Cu 230 GeV < 0.015⁴⁷ AGUILAR-BENITEZ 87F and BARLAG 92C compute the branching fraction by topological normalization. $\Gamma(\overline{K}^{0}\pi^{+}\pi^{+}\pi^{-}\pi^{0})/\Gamma_{\text{total}}$ Γ₆₆/Γ DOCUMENT ID TECN COMMENT EVTS $0.054^{+0.030}_{-0.014}$ OUR AVERAGE $0.099\substack{+\,0.036\\-\,0.070}$ ⁴⁸ BARLAG 92C ACCM π^- Cu 230 GeV $0.044^{+0.052}_{-0.013}{\pm}0.007$ ⁴⁸ AGUILAR-... 87F HYBR πp, pp 360, 400 GeV 2 ⁴⁸ AGUILAR-BENITEZ 87F and BARLAG 92C compute the branching fraction by topological normalization. HTTP://PDG.LBL.GOV Page 23 Created: 6/29/1998 12:20

ALLIF ,	total	DOCUMENT ID		TECN	COMMENT	•.,
0.0008±0.0007	49	BARLAG	920	ACCM	π^{-} Cu 230 C	GeV
⁴⁹ BARLAG 92C computes	the brar	ching fraction u	sing	topologi	cal normalizat	ion.
$(K^{-}\pi^{+}\pi^{+}\pi^{+}\pi^{-}\pi^{0})/$	Γ _{total}					Г ₆₈ /Г
ALUE	50	DOCUMENT ID	000	<u>TECN</u>	$\underline{COMMENT}$	2.37
50 BARLAG 92C computes	the bran	Ching fraction u	92C	ACCIVI topologi	π Cu 230 C	ion
$(\mathbf{K}_{0}\mathbf{K}_{0}\mathbf{K}_{+})/\mathbf{\Gamma}(\mathbf{K}_{-}\mathbf{m}_{+})$	_+)					
$(\mathbf{A} \mathbf{A} \mathbf{A} \mathbf{A}^{*})/(\mathbf{A} \mathbf{A}^{*})$	"")	DOCUMENT ID		TECN	COMMENT	169/134
.20±0.09 OUR AVERAGE	Error i	ncludes scale fa	ctor o	of 2.4.	COMMENT	
$.14\pm0.04\pm0.02$	39	ALBRECHT	941	ARG	$e^+e^- \approx 10$ (GeV
.34±0.07	70	AMMAR	91	CLEO	e^+e^-pprox 10	.5 GeV
-		Pionic mode	s —			
$(\pi^+\pi^0)/\Gamma(K^-\pi^+\pi^+)$						Г ₉₇ /Г ₃₄
ALUE EV	<u>TS</u>	DOCUMENT ID		TECN	COMMENT	
.028±0.006±0.005	34	SELEN	93	CLE2	e^+e^-pprox γ	(4 <i>S</i>)
$(\pi^+\pi^+\pi^-)/\Gamma(\kappa^-\pi^+)$	$\pi^+)$					Г <u>98</u> /Г ₃₄
<u>ALUE EV</u> 0406+0.0034.OUR FIT	<u>/TS</u>	<u>DOCUMENT ID</u>		<u>TECN</u>	<u>COMMENT</u>	
.0403±0.0035 OUR AVER/	AGE					
.043 ±0.003 ±0.003 2	36	FRABETTI	97	E687	γ Be $pprox$ 200	GeV
.032 ± 0.011 ± 0.003	20	ADAMOVICH	93	WA82	π^{-} 340 GeV	/
.035 ± 0.007 ± 0.003		ANJOS	89	E691	Photoproduc	ction
042 $\pm 0.016 \pm 0.010$	57	BALTRUSAIT	85	E MRK3	e ⁺ e ⁻ 3.77	GeV
$(ho^0 \pi^+) / \Gamma(\pi^+ \pi^+ \pi^-)$						6 99/Г98
ALUE		DOCUMENT ID		TECN	COMMENT	
$289 \pm 0.055 \pm 0.058$	51	FRABETTI	97 D	E687	$\gamma~{ m Be}pprox~200$	GeV
⁵¹ FRABETTI 97D also ind resulting decay fractions	cludes fr are not	$_2(1270)\pi^+$ and statistically sign	f ₀ (9 iificar	80) π^+ nt.	modes in the	fit, but the
$\Gamma(ho^{0}\pi^{+})/\Gamma(K^{-}\pi^{+}\pi^{+})$						Г99/Г34
ALUE <u>CL</u>	%	DOCUMENT ID		TECN	COMMENT	
$\bullet\bullet$ We do not use the fol	lowing d	lata for averages	s, fits	, limits,	etc. • • •	
< 0.015 90		ANJOS	89	E691	Photoproduc	tion
$(\pi^+\pi^+\pi^-$ nonresonan	t)/Γ(π	$(+\pi^{+}\pi^{-})$				Γ100/Γοε
ALUE	<i>,,</i> (*	, <u>DOCUMEN</u> T ID		<u>TECN</u>	<u>COMMENT</u>	
.62 ±0.11 OUR FIT						
$.589 \pm 0.105 \pm 0.081$	52	FRABETTI	97 D	F687	$\gamma \text{ Be} \approx 200$	GeV
			• • -	2001	, 2011 200	001

$\Gamma(\pi^+\pi^+\pi^- \text{ nonreso})$	nant)/Г(<i>H</i>	(⁻π⁺π⁺)		TECN	Г <u>100</u> /Г <u>34</u> соммент
0.025±0.005 OUR FIT 0.027±0.007±0.002		ANJOS	89	E691	Photoproduction
$\Gamma(\pi^+\pi^+\pi^-\pi^0)/\Gamma_{tot}$	tal	DOCUMENT ID		TECN	Г ₁₀₁ /Г
$0.019\substack{+0.015\\-0.012}$	53	³ BARLAG	9 2C	ACCM	π^- Cu 230 GeV
⁵³ BARLAG 92C compu	ites the brar	nching fraction u	ising	topologi	cal normalization.
$\frac{\Gamma(\pi^+\pi^+\pi^-\pi^0)}{\Gamma(\mu)}$	(⁻π⁺π⁺)	DOCUMENT ID		<u>TECN</u>	Г ₁₀₁ /Г ₃₄
• • • We do not use the	e following o	lata for averages	s, fits	, limits,	etc. • • •
<0.4	90	ANJOS	89e	E691	Photoproduction
$\Gamma(\eta \pi^+)/\Gamma(K^-\pi^+\pi^-)$ Unseen decay mod	+) les of the η <u>CL%_EVTS</u>	are included. <u>DOCUMEI</u>	NT ID	7	Г <u>106</u> /Г <u>34</u> гесл <u>соммент</u>
$0.083 {\pm} 0.023 {\pm} 0.014$	99	DAOUD	I	92 (CLE2 $e^+e^-\approx 10.5$
• • • We do not use the	e following c	lata for averages	s, fits	, limits,	etc. ● ●
<0.12	90	ANJOS		89e E	691 Photoproduction
$\Gamma(\omega \pi^+)/\Gamma(\kappa^-\pi^+\pi^+)$	+) les of the ω	are included.			Г ₁₀₈ /Г ₃₄
VALUE	<u>CL%</u>	DOCUMENT ID		<u>TECN</u>	<u>COMMENT</u>
<0.08	90	ANJOS	89E	E091	Photoproduction
$\frac{\Gamma(\pi^+\pi^+\pi^+\pi^-\pi^-)}{\frac{VALUE}{2}}$	/F _{total}	DOCUMENT ID		<u>TECN</u>	Г ₁₀₄ /Г
• • We do not use the	e following c	lata for averages	s, fits	, limits,	etc. • • •
$a = a = a = \pm 0.0008$					
0.0010 + 0.0000	54	BARLAG	9 2C	ACCM	π^- Cu 230 GeV
^{0.0010} – 0.0007 ⁵⁴ BARLAG 92C compu	12 Ites the brar	⁴ BARLAG nching fraction u	92C Ising	ACCM topologi	π^- Cu 230 GeV cal normalization.
$^{0.0010} - 0.0007$ 54 BARLAG 92C compute $\Gamma(\pi^{+}\pi^{+}\pi^{+}\pi^{-}\pi^{-})/V_{ALUE}$	⁵⁴ Ites the brar /Γ(Κ π ⁺ ^{CL%} EVTS	¹ BARLAG nching fraction u π ⁺) 5 DOCUMEI	92C Ising NT ID	ACCM topologi	π^- Cu 230 GeV cal normalization. Γ_{104}/Γ_{34} TECN COMMENT
$\frac{100010 - 0.0007}{54} \text{ BARLAG 92C computed} \\ \Gamma(\pi^{+}\pi^{+}\pi^{+}\pi^{-}\pi^{-})/\frac{100000}{100000000000000000000000000000$	54 Ites the brar /Γ(Κ π ⁺ <u>CL% EVTS</u> 58	^I BARLAG nching fraction u π ⁺) <u>DOCUME</u> FRABET	92C Ising <u>NT ID</u> TTI	ACCM topologi <u>7</u> 97c E	π^- Cu 230 GeV cal normalization. Γ_{104}/Γ_{34} TECN <u>COMMENT</u> E687 γ Be, $\overline{E}_{\gamma} \approx 200$ GeV
$\frac{1}{54} \text{ BARLAG 92C computed} \\ \Gamma(\pi^{+}\pi^{+}\pi^{+}\pi^{-}\pi^{-})/\frac{1}{2} \\ \frac{1}{2} \\ $	the brand $\Gamma(K^-\pi^+)$ $\frac{CL\%}{58}$ following c	¹ BARLAG nching fraction u π ⁺) <u>DOCUME</u> FRABET lata for averages	92C Ising <u>NT ID</u> TTI S, fits	ACCM topologi <u>7</u> 97C E , limits,	π^- Cu 230 GeV cal normalization. Γ104/Γ34 <u>ΓΕCN</u> <u>COMMENT</u> 2687 γ Be, $\overline{E}_{\gamma} \approx 200$ GeV etc. • • •
0.0010 $-$ 0.0007 ⁵⁴ BARLAG 92C computing $\Gamma(\pi^+\pi^+\pi^+\pi^-\pi^-)/\frac{VALUE}{0.023\pm 0.004\pm 0.002}$ ••• We do not use the <0.019	54 htes the brar /Γ(Κ π ⁺ <u>CL%_EVTS</u> 58 e following c 90	⁴ BARLAG nching fraction u π ⁺) 5 FRABET lata for averages ANJOS	92C Ising N <u>T ID</u> TTI S, fits	ACCM topologi <u>7</u> 97C E , limits, 89 E	π^- Cu 230 GeV cal normalization. Γ104/Γ34 <u>ΓΕCN</u> <u>COMMENT</u> E687 γ Be, $\overline{E}_{\gamma} \approx 200$ GeV etc. • • • E691 Photoproduction
0.0010 - 0.0007 ⁵⁴ BARLAG 92C compute $\Gamma(\pi^+\pi^+\pi^+\pi^-\pi^-)/\frac{VALUE}{0.023\pm 0.004\pm 0.002}$ • • • We do not use the <0.019 $\Gamma(\eta\rho^+)/\Gamma(K^-\pi^+\pi^-)/\frac{V}{U}$	the sthe brar $\Gamma(K^-\pi^+)$ $\frac{CL\%}{58}$ $F(K^-\pi^+)$ $\frac{F(K^-\pi^+)}{58}$ $F(K^-\pi^$	⁴ BARLAG nching fraction u π ⁺) 5 FRABET lata for averages ANJOS are included.	92C Ising N <u>T ID</u> TTI 5, fits	ACCM topologi 97C E , limits, 89 E	$π^-$ Cu 230 GeV cal normalization. Γ104/Γ34 <u>ΓΕCN</u> <u>COMMENT</u> 2687 γ Be, $\overline{E}_{\gamma} \approx 200$ GeV etc. • • • 2691 Photoproduction Γ109/Γ34
0.0010 - 0.0007 ⁵⁴ BARLAG 92C compute $\Gamma(\pi^+\pi^+\pi^+\pi^-\pi^-)/\frac{VALUE}{0.023\pm 0.004\pm 0.002}$ • • • We do not use the <0.019 $\Gamma(\eta\rho^+)/\Gamma(K^-\pi^+\pi^-)/\frac{VALUE}{VALUE}$	the bran $\int \Gamma(K^-\pi^+)$ $\frac{CL\%}{58}$ following c 90 $f(K^-\pi^+)$ les of the η $\frac{CL\%}{90}$	BARLAG aching fraction u π+) <u>DOCUMEN</u> FRABET lata for averages ANJOS are included. <u>DOCUMENT ID</u>	92C Ising NT ID TTI S, fits	ACCM topologi 97C E , limits, 89 E <u>TECN</u>	$π^-$ Cu 230 GeV cal normalization. Γ_{104}/Γ_{34} Γ_{ECN} <u>COMMENT</u> E687 γ Be, $\overline{E}_{\gamma} \approx 200$ GeV etc. • • • E691 Photoproduction Γ_{109}/Γ_{34} <u>COMMENT</u> $e^+e^- \approx 10.5$ CeV

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<u>VALUE</u> 0.0029+0.0029 55 BARLAG 92C computes $\Gamma(\eta'(958)\pi^+)/\Gamma(\kappa^-\pi^-)^{-1}$ Unseen decay modes of <u>VALUE</u>	55 the bran + π+) of the η'	<u>DOCUMENT ID</u> BARLAG ching fraction u	92C	<u>TECN</u> ACCM topologi	$\frac{COMMENT}{\pi^{-} \text{ Cu } 230 \text{ GeV}}$
0.0029 ⁺ 0.0029 ⁵⁵ BARLAG 92C computes Γ(η'(958)π ⁺)/Γ(Κ ⁻ π ⁻ Unseen decay modes of VALUE <u>CL</u>	55 the bran + 	BARLAG ching fraction u	92C sing	ACCM topologi	π^- Cu 230 GeV
⁵⁵ BARLAG 92C computes $(\eta'(958)\pi^+)/\Gamma(K^-\pi^-)$ Unseen decay modes of (ALUE <u>CL</u>	the bran $+\pi^+$)	ching fraction u	sing	topologi	cal normalization
Γ(η'(958) π ⁺)/ Γ(K ⁻ π ⁻ Unseen decay modes of ALUE <u>CL</u>	$+\pi^+$				
Unseen decay modes of ALUE <u>CL</u>	of the n'				Г ₁₁₀ /Г ₃
ALUE <u>CL</u>		(958) are include	ed.		
	<u>L%</u>	DOCUMENT ID		TECN	COMMENT
< 0.1 90	0	DAOUDI	92	CLE2	$e^+e^- \approx 10.5 \text{ GeV}$
90 • • We do not use the fol	U Mowing d	ALVAREZ	91 fite	NA14	
			010	Γ601	$a = \frac{1}{5}$ or $\frac{1}{5}$
(0.13 90	0	ANJOS	9 18	E091	γ Be, $E_{\gamma} \approx 145$ GeV
$(\eta'(958)\rho^+)/\Gamma(K^-\pi^+)$	$^{+}\pi^{+})$				Г ₁₁₁ /Г ₃
Unseen decay modes	of the η'	(958) are includ	ed.		, •
ALUE CL	<u>L%</u>	DOCUMENT ID		TECN	COMMENT
<0.17 90	0	DAOUDI	92	CLE2	$e^+ e^- pprox ~10.5~{ m GeV}$
—— н	ladronic	modes with	a K	K nair	
				n pan	
$\Gamma(K^+\overline{K}^0)/\Gamma(\overline{K}^0\pi^+)$					Γ ₁₁₂ /Γ ₃
It is generally assumed				-	-
$\Gamma(D^+ ightarrow$ it is the latter Γ that is Cabibbo-allowed and c	d for mod $\overline{K}{}^{0}\pi^{+})$ s actually doubly C	des such as D^+ = $2\Gamma(D^+ \rightarrow P)$ measured. BIGI abibbo-suppresse	$\rightarrow \frac{1}{S} \pi^{-1}$ 95 p ed an	$\overline{K}^0 \pi^+ t$ +); oints out	hat t that interference betwee s, where both occur, coul
$\Gamma(D^+ \rightarrow times the start)$ it is the latter Γ that is Cabibbo-allowed and $times the second descent of the second descent start \Gamma$	d for mod $\overline{K}^0 \pi^+$) s actually doubly C ption by a \sqrt{TS}	des such as D^+ = $2\Gamma(D^+ \rightarrow P)$ measured. BIGI abibbo-suppresse few percent.	$\rightarrow \frac{1}{5} \pi^{-1}$ 95 per ed an	$\overline{K}^0 \pi^+$ t +); oints out nplitude:	t that interference betwee s, where both occur, coul
$\Gamma(D^+ \rightarrow ti is the latter \Gamma that is Cabibbo-allowed and or invalidate this assump ALUE EV.255±0.029 OUR FIT$	d for mod $\overline{K}{}^{0}\pi^{+})$ s actually doubly C otion by a <u>(TS</u>)	des such as D^+ = $2\Gamma(D^+ \rightarrow P)$ measured. BIGI abibbo-suppresse few percent. <u>DOCUMENT ID</u>	\rightarrow $S \pi^{-1}$ 95 pe	$\overline{K}^0 \pi^+$ t +); oints out nplitudes <u>TECN</u>	that t that interference betwee s, where both occur, coul <u>COMMENT</u>
$\Gamma(D^+ \rightarrow times is the latter \Gamma that is Cabibbo-allowed and the invalidate this assumption \frac{ALUE}{255\pm0.029} \text{ OUR FIT} = 263\pm0.035 \text{ OUR AVERAC}$	d for mod $\overline{K}^0 \pi^+$) s actually doubly C otion by a <u>(TS</u> GE	des such as D^+ = $2\Gamma(D^+ \rightarrow P)$ measured. BIGI abibbo-suppresse few percent. <u>DOCUMENT ID</u>	\rightarrow $(\circ S \pi^{-1})$ 95 pred an	$\overline{K}^0 \pi^+$ t +); oints out nplitudes <u>TECN</u>	hat t that interference betwee s, where both occur, coul <u>COMMENT</u>
$\Gamma(D^+ \rightarrow it \text{ is the latter } \Gamma \text{ that is Cabibbo-allowed and o invalidate this assump}$ $ALUE EV$ $255 \pm 0.029 \text{ OUR FIT}$ $263 \pm 0.035 \text{ OUR AVERAC}$ $25 \pm 0.04 \pm 0.02 12$	d for mod $\overline{K}^0 \pi^+$) is actually doubly C otion by a <u>(TS</u>) GE 29	des such as D^+ = $2\Gamma(D^+ \rightarrow P)$ measured. BIGI abibbo-suppresse few percent. <u>DOCUMENT ID</u>	\rightarrow $\begin{cases} 0 \\ S \\ n^{-1} \\ 95 \\ p_{-1} \\$	$\overline{K}^0 \pi^+$ t +); oints out nplitudes \underline{TECN} E687	that interference between that interference between s, where both occur, coult $\underline{COMMENT}$ $\gamma\mathrm{Be}\overline{E}_\gammapprox200\mathrm{GeV}$
$\Gamma(D^+ \rightarrow It is the latter \Gamma that is Cabibbo-allowed and or invalidate this assumption of the system of the system$	d for mod $\overline{K}^0 \pi^+$) s actually doubly C otion by a <u>(TS</u>) GE 29 69	des such as D^+ = $2\Gamma(D^+ \rightarrow P)$ measured. BIGI abibbo-suppresse few percent. <u>DOCUMENT ID</u> FRABETTI ANJOS	\rightarrow $\begin{cases} 0 \\ 5 \\ 7 \\ 95 \\ p \\ ed an \\ 95 \\ 90 \\ 90 \\ \end{bmatrix}$	$\overline{K}^0 \pi^+$ t +); oints out nplitudes \underline{TECN} E687 E691	that interference between s, where both occur, coult $\frac{COMMENT}{\gamma{ m Be}\overline{E}_{\gamma}}pprox 200{ m GeV}$
$\Gamma(D^+ \rightarrow III)$ it is the latter Γ that is Cabibbo-allowed and of invalidate this assump ALUE EV 255±0.029 OUR FIT 263±0.035 OUR AVERAC 25 ±0.04 ±0.02 12 271±0.065±0.039 317±0.086±0.048	d for mod $\overline{K}^0 \pi^+$) s actually doubly C ption by a \overline{TS} GE 29 69 31	des such as D^+ = $2\Gamma(D^+ \rightarrow P)$ measured. BIGI abibbo-suppresse few percent. <u>DOCUMENT ID</u> FRABETTI ANJOS BALTRUSAIT.	\rightarrow 95 ped an 95 90 ed an 95 90C .85E	$\overline{K}^0 \pi^+$ t +); oints out nplitudes \underline{TECN} E687 E691 MRK3	that t that interference between s, where both occur, coul $\underline{COMMENT}$ $\gamma \operatorname{Be} \overline{E}_{\gamma} \approx 200 \ \mathrm{GeV}$ $\gamma \operatorname{Be}$ $e^+e^- 3.77 \ \mathrm{GeV}$
$\Gamma(D^+ \rightarrow it is the latter \Gamma that isCabibbo-allowed and orinvalidate this assump ALUE EV 255±0.029 OUR FIT 263±0.035 OUR AVERAC 25 ±0.04 ±0.02 12 271±0.065±0.039 317±0.086±0.048 32 25 ±0.15$	d for mod $\overline{K}^0 \pi^+$) s actually doubly C ption by a \underline{TS} GE 29 69 31 6	des such as D^+ = $2\Gamma(D^+ \rightarrow P)$ measured. BIGI abibbo-suppressed few percent. <u>DOCUMENT ID</u> FRABETTI ANJOS BALTRUSAIT. SCHINDLER	\rightarrow $\begin{cases} 0 \\ S \\ T \\ ed \\ an \\ \\ 95 \\ 90 \\ .85 \\ 81 \\ C \\ .81 \\ C \\ .85 \\ .81 \\ C \\ .8$	$\overline{K}^0 \pi^+$ t +); oints out nplitudes \underline{TECN} E687 E691 MRK3 MRK2	that t that interference between s, where both occur, coul $\underline{COMMENT}$ $\gamma \text{Be} \overline{E}_{\gamma} \approx 200 \text{ GeV}$ γBe $e^+e^- 3.77 \text{ GeV}$ $e^+e^- 3.771 \text{ GeV}$
$\Gamma(D^+ \rightarrow it is the latter \Gamma that isCabibbo-allowed and oinvalidate this assumpALUE EV255±0.029 OUR FIT263±0.035 OUR AVERAO25 ±0.04 ±0.02 12271±0.065±0.039 3317±0.086±0.048 325 ±0.15• We do not use the following the followin$	d for mod $\overline{K}^0 \pi^+$) s actually doubly C obtion by a \overline{TS} GE 29 69 31 6 sllowing d	tes such as D^+ $= 2\Gamma(D^+ \rightarrow P)$ measured. BIGI abibbo-suppressed few percent. <u>DOCUMENT ID</u> FRABETTI ANJOS BALTRUSAIT. SCHINDLER ata for averages	\rightarrow $\begin{cases} 0 \\ S \\ n^{-1} \\ 95 \\ p_{0} \\ ad \\ an \\ 95 \\ 90 \\ .85 \\ 81 \\ fits \\ \end{cases}$	$\overline{K}^0 \pi^+$ t +); oints out nplitudes <u>TECN</u> E687 E691 MRK3 MRK2 , limits,	that t that interference between s, where both occur, coult $\frac{COMMENT}{\gamma \text{ Be } \overline{E}_{\gamma} \approx 200 \text{ GeV}}$ $\frac{\gamma \text{ Be }}{e^+ e^- 3.77 \text{ GeV}}$ $e^+ e^- 3.771 \text{ GeV}$ etc. • • •
$\Gamma(D^+ \rightarrow it is the latter \Gamma that isCabibbo-allowed and oinvalidate this assumpALUE EV255±0.029 OUR FIT263±0.035 OUR AVERAC25 ±0.04 ±0.02 12271±0.065±0.039317±0.086±0.048 3225 ±0.15• We do not use the fol222±0.041±0.029$	d for mod $\overline{K}^0 \pi^+$) s actually doubly C otion by a \overline{TS} GE 29 69 31 6 sllowing d 70 56	des such as D^+ $= 2\Gamma(D^+ \rightarrow P)$ measured. BIGI abibbo-suppressed few percent. <u>DOCUMENT ID</u> FRABETTI ANJOS BALTRUSAIT. SCHINDLER ata for averages BISHAI	\rightarrow $\begin{pmatrix} 0 \\ S \\ \pi \\ 95 \\ 95 \\ 90c \\ .85E \\ 81 \\ , fits \\ 97 \\ \end{pmatrix}$	$\overline{K}^0 \pi^+$ t +); oints out nplitudes <u>TECN</u> E687 E691 MRK3 MRK2 , limits, CLE2	that that interference between s, where both occur, coult $\frac{COMMENT}{\gamma \text{ Be } \overline{E}_{\gamma} \approx 200 \text{ GeV}}$ $\frac{\gamma \text{ Be }}{e^+e^- 3.77 \text{ GeV}}$ $e^+e^- 3.771 \text{ GeV}$ $\text{etc. } \bullet \bullet$ $e^+e^- \approx \Upsilon(4S)$
$\Gamma(D^+ \rightarrow III)$ it is the latter Γ that is Cabibbo-allowed and or invalidate this assump ALUE EV 255±0.029 OUR FIT 263±0.035 OUR AVERAC .25±0.04±0.02 12 .271±0.065±0.039 0 .317±0.086±0.048 3 .25±0.15 • We do not use the foll .222±0.041±0.029 5 This BISHAI 97 result is	d for mod $\overline{K}^0 \pi^+$) s actually doubly C ption by a \overline{TS} GE 29 69 31 6 s redunda	tes such as D^+ $= 2\Gamma(D^+ \rightarrow P)$ measured. BIGI abibbo-suppressed few percent. <u>DOCUMENT ID</u> FRABETTI ANJOS BALTRUSAIT. SCHINDLER ata for averages BISHAI nt with results of	\rightarrow $\begin{pmatrix} S \\ 95 \\ 95 \\ 90c \\ 81 \\ 10c \\ 81 \\ 97 \\ 10c \\ 81 \\ 97 \\ 10c \\ $	$\overline{K}^0 \pi^+$ t +); oints out nplitudes <u>TECN</u> E687 E691 MRK3 MRK2 , limits, CLE2 here in t	that that interference between s, where both occur, coult $\frac{COMMENT}{\gamma \text{ Be } \overline{E}_{\gamma} \approx 200 \text{ GeV}}$ $\frac{\gamma \text{ Be }}{e^+ e^- 3.77 \text{ GeV}}$ $e^+ e^- 3.771 \text{ GeV}$ etc. ••• $e^+ e^- \approx \Upsilon(4S)$ the Listings.
$\Gamma(D^+ \rightarrow III) = \Gamma(D^+ \rightarrow III)$ it is the latter Γ that is Cabibbo-allowed and III invalidate this assump ALUE EV 255±0.029 OUR FIT .263±0.035 OUR AVERAC .25±0.04±0.02 III .271±0.065±0.039 .317±0.086±0.048 .25±0.15 • We do not use the follow .222±0.041±0.029 .222±0.041±0.029 .222±0.041±0.029 .222±0.041±0.029 .222±0.041±0.029 .222±0.041±0.029 .222±0.041±0.029 .222±0.041±0.029 .222±0.041±0.029 .222±0.041±0.029 .222±0.041±0.029 .222±0.041±0.029 .222±0.041±0.029 .222±0.041±0.029	d for mod $\overline{K}^0 \pi^+$) s actually doubly C. ption by a \overline{TS} GE 29 69 31 6 s redunda redunda H	des such as D^+ $= 2\Gamma(D^+ \rightarrow P)$ measured. BIGI abibbo-suppressed few percent. <u>DOCUMENT ID</u> FRABETTI ANJOS BALTRUSAIT. SCHINDLER ata for averages BISHAI nt with results of	\rightarrow $\int_{0}^{0} \pi^{-1}$ 95 p ed an 95 90C .85E 81 , fits 97 elsew	$\overline{K}^0 \pi^+ t$ +); oints out nplitudes \underline{TECN} E687 E691 MRK3 MRK2 , limits, CLE2 here in t	that t that interference between s, where both occur, coult $\frac{COMMENT}{\gamma \text{ Be } \overline{E}_{\gamma} \approx 200 \text{ GeV}}$ $\frac{\gamma \text{ Be }}{e^+ e^- 3.77 \text{ GeV}}$ $e^+ e^- 3.771 \text{ GeV}$ etc. ••• $e^+ e^- \approx \Upsilon(4S)$ the Listings. Γ_{112}/Γ_3
$\Gamma(D^+ \rightarrow III) = \Gamma(D^+ \rightarrow III)$ it is the latter Γ that is Cabibbo-allowed and III invalidate this assump ALUE EV 255±0.029 OUR FIT 263±0.035 OUR AVERAC 25±0.04±0.02 III 271±0.065±0.039 III 271±0.086±0.048 III 222±0.041±0.029 IIII • We do not use the follow 222±0.041±0.029 IIII 56 This BISHAI 97 result is $\Gamma(K^+\overline{K}^0)/\Gamma(K^-\pi^+\pi^+\pi^+)$ ALUE EV 2000	d for mod $\overline{K}^0 \pi^+$) s actually doubly C ption by a \overline{TS} GE 29 69 31 6 31 6 10 wing d 70 56 s redunda H) \overline{TS}	des such as D^+ $= 2\Gamma(D^+ \rightarrow P)$ measured. BIGI abibbo-suppressed few percent. <u>DOCUMENT ID</u> FRABETTI ANJOS BALTRUSAIT. SCHINDLER ata for averages BISHAI nt with results of <u>DOCUMENT ID</u>	\rightarrow (S) π 95 p ed an 90C .85E 81 , fits 97 elsew	$\overline{K}^{0} \pi^{+} t$ $^{+});$ oints out nplitudes \underline{TECN} E687 E691 MRK3 MRK2 , limits, CLE2 here in t	that t that interference between s, where both occur, coul $\frac{COMMENT}{\gamma \text{ Be } \overline{E}_{\gamma} \approx 200 \text{ GeV}}$ $\gamma \text{ Be}$ $e^+e^- 3.77 \text{ GeV}$ $e^+e^- 3.771 \text{ GeV}$ etc. ••• $e^+e^- \approx \Upsilon(4S)$ the Listings. Γ_{112}/Γ_{3}
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$\Gamma(D^+ \rightarrow III) = \Gamma(D^+ \rightarrow III)$ it is the latter Γ that is Cabibbo-allowed and Q invalidate this assump ALUE EV .255±0.029 OUR FIT .263±0.035 OUR AVERAC .25±0.04±0.02 III .271±0.065±0.039 .317±0.086±0.048 .25±0.15 • We do not use the foll .222±0.041±0.029 .222±0.041±0.029 .225 This BISHAI 97 result is $\Gamma(K^+\overline{K^0})/\Gamma(K^-\pi^+\pi^+)$.082±0.010 OUR FIT .077±0.014±0.007 .275 See BISHAI 97 for an is	d for mod $\overline{K}^0 \pi^+$) s actually doubly C otion by a \overline{TS} GE 29 69 31 6 9 31 6 9 31 6 9 31 6 9 31 6 9 31 6 70 56 s redunda H) 70 57 57 50 57 57 50 57 50 57 50 50 50 50 50 50 50 50 50 50	tes such as D^+ $= 2\Gamma(D^+ \rightarrow P)$ measured. BIGI abibbo-suppressed few percent. <u>DOCUMENT ID</u> FRABETTI ANJOS BALTRUSAIT. SCHINDLER ata for averages BISHAI nt with results of <u>DOCUMENT ID</u> BISHAI alysis of $D^+ \rightarrow$	$\sqrt{\frac{5}{5}} \pi$ 95 p ed an 95 90C .85E 81 , fits 97 k \overline{K}	$\overline{K}^0 \pi^+ t$ +); oints out nplitudes \underline{TECN} E687 E691 MRK3 MRK2 , limits, CLE2 here in t \underline{TECN} CLE2 amplitu	that that interference between s, where both occur, could $\frac{COMMENT}{\gamma \text{ Be } \overline{E}_{\gamma} \approx 200 \text{ GeV}}$ $\frac{\gamma \text{ Be }}{e^+ e^- 3.77 \text{ GeV}}$ $e^+ e^- 3.771 \text{ GeV}$ etc. ••• $e^+ e^- \approx \Upsilon(4S)$ the Listings. Γ_{112}/Γ_{3} $\frac{COMMENT}{e^+ e^- \approx \Upsilon(4S)}$ udes.
$\Gamma(D^+ \rightarrow $ it is the latter Γ that is Cabibbo-allowed and α invalidate this assump ALUE EV .255±0.029 OUR FIT .263±0.035 OUR AVERAC .25 ±0.04 ±0.02 12 .271±0.065±0.039 .22 .317±0.086±0.048 .25 ±0.15 • We do not use the fol .222±0.041±0.029 .22 ⁵⁶ This BISHAI 97 result is $\Gamma(K^+\overline{K^0})/\Gamma(K^-\pi^+\pi^+)$.082±0.010 OUR FIT .077±0.014±0.007 .25 See BISHAI 97 for an iso $\Gamma(K^+K^-\pi^+)/\Gamma(K^-\pi^-)$	d for mod $\overline{K}^0 \pi^+$) s actually doubly C. otion by a \overline{TS} GE 29 69 31 6 9 31 6 9 31 6 9 31 6 9 31 6 70 56 s redunda +) 70 57 57 57 50 57 57 57 50 57 57 57 57 57 57 57 57 57 57	tes such as D^+ $= 2\Gamma(D^+ \rightarrow P)$ measured. BIGI abibbo-suppressed few percent. <u>DOCUMENT ID</u> FRABETTI ANJOS BALTRUSAIT. SCHINDLER ata for averages BISHAI nt with results of <u>DOCUMENT ID</u> BISHAI alysis of $D^+ \rightarrow$	$\sqrt{\frac{6}{5}\pi}$ 95 p ed an 95 90C .85E 81 , fits 97 k \overline{K}	$\overline{K}^0 \pi^+$ t $\overline{K}^0 \pi^+$	that that interference between s, where both occur, could $\frac{COMMENT}{\gamma \text{ Be } \overline{E}_{\gamma} \approx 200 \text{ GeV}}$ $\gamma \text{ Be } e^+ e^- 3.77 \text{ GeV}$ $e^+ e^- 3.771 \text{ GeV}$ etc. ••• $e^+ e^- \approx \Upsilon(4S)$ the Listings. Γ_{112}/Γ_{3} $\frac{COMMENT}{e^+ e^-} \approx \Upsilon(4S)$ udes. Γ_{113}/Γ_{3}
$\Gamma(D^+ \rightarrow it is the latter \Gamma that isCabibbo-allowed and oinvalidate this assumpALUE EV255±0.029 OUR FIT263±0.035 OUR AVERAO25 ±0.04 ±0.02 12271±0.065±0.039317±0.086±0.04825 ±0.15• We do not use the fol222±0.041±0.02956 This BISHAI 97 result is\Gamma(K^+\overline{K}^0)/\Gamma(K^-\pi^+\pi^+ALUE EV082±0.010 OUR FIT0.077±0.014±0.00757 See BISHAI 97 for an iso\Gamma(K^+K^-\pi^+)/\Gamma(K^-\pi^+ALUE$	d for mod $\overline{K}^0 \pi^+$) s actually doubly C. ption by a \overline{TS} GE 29 69 31 6 s redunda H) \overline{TS} 70 57 \overline{TS} 70 57 sospin ana + π^+)	des such as D^+ $= 2\Gamma(D^+ \rightarrow P)$ measured. BIGI abibbo-suppresse few percent. <u>DOCUMENT ID</u> FRABETTI ANJOS BALTRUSAIT. SCHINDLER ata for averages BISHAI nt with results of <u>DOCUMENT ID</u> BISHAI alysis of $D^+ \rightarrow$ <u>DOCUMENT ID</u>	$\begin{array}{c} & & \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ $	$\overline{K}^0 \pi^+$ t +); oints out oplitudes <u>TECN</u> E687 E691 MRK3 MRK2 , limits, CLE2 here in t <u>TECN</u> CLE2 amplitu	that t that interference between s, where both occur, coult $\frac{COMMENT}{\gamma \text{ Be } \overline{E}_{\gamma} \approx 200 \text{ GeV}}$ $\gamma \text{ Be } \overline{E}_{\gamma} \approx 200 \text{ GeV}$ $\gamma \text{ Be } e^+ e^- 3.77 \text{ GeV}$ $e^+ e^- 3.771 \text{ GeV}$ etc. ••• $e^+ e^- \approx \Upsilon(4S)$ the Listings. $\frac{\Gamma_{112}/\Gamma_3}{COMMENT}$ $e^+ e^- \approx \Upsilon(4S)$ udes. Γ_{113}/Γ_3

$\Gamma(\phi\pi^+)/\Gamma(\kappa^-\pi^+\pi^+)$	π ⁺)	/ • • • •			Γ ₁₃₀ /Γ ₃₄
Unseen decay mo	EVTS	ϕ are included.		TECN	COMMENT
0.068+0.005 OUR AVI		DOCOMENTID		TLCN	COMMENT
$0.058 \pm 0.006 \pm 0.006$		FRABETTI	9 5B	F687	Dalitz plot analysis
$0.062 \pm 0.000 \pm 0.000$	19		93	WA82	π^{-} 340 GeV
$0.002 \pm 0.011 \pm 0.000$	128		92	CL F2	$e^+e^- \approx 10.5 \text{ GeV}$
$0.098 \pm 0.032 \pm 0.014$	120	AI VAREZ	90c	NA14	Photoproduction
$0.071 \pm 0.002 \pm 0.001$	84	ANJOS	88	E691	Photoproduction
$0.084 \pm 0.021 \pm 0.011$	21	BALTRUSAIT.	85E	MRK3	e^+e^- 3.77 GeV
Г(<i>К</i> ⁺ <i>К</i> *(892) ⁰)/Г	$(K^{-}\pi^{+}\pi$	+)			Г ₁₃₄ /Г ₃₄
Unseen decay mo	odes of the	$\overline{K}^*(892)^0$ are incl	uded		
VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.047 ± 0.005 OUR AVI	ERAGE E	rror includes scale	facto	or of 1.2	
$0.044 \pm 0.003 \pm 0.004$		⁵⁰ FRABETTI	95E	3 E687	Dalitz plot analysis
$0.058 \pm 0.009 \pm 0.006$	73	ANJOS	88	E691	Photoproduction
$0.048 \!\pm\! 0.021 \!\pm\! 0.011$	14	BALTRUSAIT	85E	MRK3	e ⁺ e ⁻ 3.77 GeV
⁵⁸ See FRABETTI 95 Dalitz plot.	B for evide	nce also of $\overline{K}^*_0(14)$	430) ⁰	K^+ in	the $D^+ \rightarrow K^+ K^- \pi^+$
$\Gamma(K^+K^-\pi^+ \text{ nonre})$	sonant)/[$(K^-\pi^+\pi^+)$		TECH	Γ ₁₁₆ /Γ ₃₄
		DOCUMENT ID		TECN	COMMENT
0.050 ± 0.009 OUR AVI			00	E601	Dhotoproduction
$0.049 \pm 0.000 \pm 0.000$	95 27		00 05r		a^+a^- 2.77 CoV
$0.059 \pm 0.020 \pm 0.009$	51	BALINUSAII.	09E	WINNS	e'e S.H Gev
$\Gamma(K^*(892)^+\overline{K}^0)/\Gamma$	$(\overline{K}^0\pi^+)$				Г ₁₃₅ /Г ₃₃
Unseen decay mo	des of the	$K^{*}(892)^{+}$ are inc	ludec	1	
VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
$1.1 \pm 0.3 \pm 0.4$	67	FRABETTI	95	E687	$\gamma{ m Be}\overline{E}_\gammapprox$ 200 GeV
$\Gamma(\phi \pi^+ \pi^0) / \Gamma_{ ext{total}}$					Г ₁₃₁ /Г
Unseen decay mo	odes of the	ϕ are included.		TECH	601415NT
VALUE		<u>DOCUMENT ID</u>		<u>TECN</u>	COMMENT
0.023 ± 0.010		³⁹ BARLAG	92C	ACCM	π^- Cu 230 GeV
⁵⁹ BARLAG 92C comp	outes the br	anching fraction u	sing	topologi	cal normalization.
$\Gamma(\phi \pi^+ \pi^0) / \Gamma(K^- \pi)$ Unseen decay mo	$(+\pi^{+})$,			Г ₁₃₁ /Г ₃₄
VALLIE	des of the	ϕ are included.			
MLOL	odes of the <u>CL%</u>	ϕ are included. DOCUMENT ID		TECN	COMMENT
• • • We do not use th	odes of the <u>CL%_</u> ne following	ϕ are included. <u>DOCUMENT ID</u> ; data for averages	, fits	<u>TECN</u> limits,	<u>COMMENT</u> etc. ● ● ●
• • • We do not use the <0.58	odes of the <u>CL%</u> ne following 90	ϕ are included. <u>DOCUMENT ID</u> ; data for averages AIVARE7	, fits	<u>TECN</u> limits, NA14	<u>COMMENT</u> etc. ● ● ●
• • • We do not use th <0.58 <0.28	odes of the <u>CL%</u> ne following 90 90	ϕ are included. <u>DOCUMENT ID</u> ; data for averages ALVAREZ ANJOS	, fits 90C 89E	<u>TECN</u> limits, NA14 E691	<u>COMMENT</u> etc. ● ● ● Photoproduction Photoproduction
••• We do not use the constant of the constan	odes of the <u>CL%</u> ne following 90 90 r+)	 φ are included. <u>DOCUMENT ID</u> data for averages ALVAREZ ANJOS 	, fits 90C 89E	<u>TECN</u> limits, NA14 E691	COMMENT etc. • • • Photoproduction Photoproduction Γ ₁₃₂ /Γ ₃₄
• • We do not use the <0.58 <0.28 $\Gamma(\phi \rho^+)/\Gamma(K^-\pi^+\pi)$ Unseen decay motion	odes of the <u>CL%</u> ne following 90 90 r+) odes of the	 φ are included. <u>DOCUMENT ID</u> data for averages ALVAREZ ANJOS φ are included. 	, fits 90C 89E	TECN NA14 E691	$\frac{COMMENT}{Photoproduction}$ Photoproduction Γ_{132}/Γ_{34}
• • We do not use the constant of the constan	odes of the <u>CL%</u> ne following 90 90 r+) odes of the <u>CL%</u> 00	 φ are included. <u>DOCUMENT ID</u> data for averages ALVAREZ ANJOS φ are included. <u>DOCUMENT ID</u> 	90C 89E	TECN Iimits, NA14 E691 <u>TECN</u>	$\frac{COMMENT}{Photoproduction}$ Γ_{132}/Γ_{34} $\frac{COMMENT}{a^{+}a^{-}} \approx 10.5 \text{ GeV}$
• • • We do not use the <0.58 <0.28 $\Gamma(\phi \rho^+)/\Gamma(K^-\pi^+\pi^-)$ Unseen decay model of $VALUE$ <0.16	odes of the <u>CL%</u> ne following 90 90 r+) odes of the <u>CL%</u> 90	 φ are included. <u>DOCUMENT ID</u> data for averages ALVAREZ ANJOS φ are included. <u>DOCUMENT ID</u> DAOUDI 	90C 90C 89E	TECN limits, NA14 E691 <u>TECN</u> CLE2	etc. • • • Photoproduction Photoproduction Γ_{132}/Γ_{34} <u>COMMENT</u> $e^+e^- \approx 10.5 \text{ GeV}$

$\Gamma(K^+K^-\pi^+\pi^0 \text{ non-}\phi)$	b)/Γ _{total}	DOCUMENT ID		TECN	Г ₁₂₂ /Г <u>соммент</u>
$0.015 \substack{+0.007 \\ -0.006}$	60) BARLAG	9 2C	ACCM	π^- Cu 230 GeV
⁶⁰ BARLAG 92C comput	es the brar	nching fraction u	sing	topologi	cal normalization.
$\Gamma(K^+K^-\pi^+\pi^0 \operatorname{non}-\phi)$	5)/Г(<i>К</i> -	$\pi^+\pi^+$)			Γ_{122}/Γ_{34}
VALUE	<u>CL%</u>	DOCUMENT ID		TECN	COMMENT
\bullet \bullet \bullet We do not use the	following c	lata for averages	, fits	, limits,	etc. • • •
<0.25	90	ANJOS	89e	E691	Photoproduction
$\Gamma(\kappa^+\overline{\kappa}^0\pi^+\pi^-)/\Gamma_{\rm tot}$	al			TECN	Γ ₁₂₃ /Γ
VALUE	<u>CL%</u>	DUCUMENT ID	005		$\frac{COMMENT}{+} = 10.4 \text{ G V}$
<0.02	90	ALBRECHI	9 2B	ARG	$e^+e^-\simeq 10.4~{ m GeV}$
$\Gamma(\kappa^0 \kappa^- \pi^+ \pi^+)/\Gamma_{\text{tot}}$	al	DOCUMENT ID		TECN	Γ ₁₂₄ /Γ
0.01 + 0.005 + 0.003			02B	ARG	$e^+e^- \sim 10.4 \text{ GeV}$
• • We do not use the	following c	lata for averages	, fits	, limits,	etc. ● ● ●
< 0.003	61		, 92C	ACCM	π [—] Cu 230 GeV
61 BARI AC 02C comput	es the brar	ching fraction u	sing	topologi	cal normalization
Γ(<i>K</i> *(892) ⁺ <i>K</i> *(892) ⁰	⁰)/Γ _{total}		8		Г ₁₃₆ /Г
Unseen decay mode	es of the <i>K</i>	*(892)'s are incl	uded	TECN	COMMENT
0.026±0.008±0.007		ALBRECHT	92 B	ARG	$e^+e^- \simeq 10.4 \text{ GeV}$
$\Gamma(K^0K^-\pi^+\pi^+$ non-k	(*+ K *0)	/[Глас/Г
VALUE	, (1%)	DOCUMENT ID		TECN	• 120/ • COMMENT
<0.0079	90	ALBRECHT	92 B	ARG	$e^+e^- \simeq 10.4 \text{ GeV}$
$\Gamma(\phi \pi^+ \pi^+ \pi^-)/\Gamma_{\text{total}}$	ϕ of the ϕ	are included			Г ₁₃₃ /Г
VALUE CL%	<u>EVTS</u>	DOCUMENT ID		TECN	COMMENT
<0.002 90	0	ANJOS	88	E691	Photoproduction
$\Gamma(\phi \pi^+ \pi^+ \pi^-)/\Gamma(K^-)$	$\pi^+\pi^+$	are included.			Г ₁₃₃ /Г ₃₄
VALUE	<u>CL%</u>	DOCUMENT ID		TECN	COMMENT
\bullet \bullet \bullet We do not use the	following c	lata for averages	, fits	, limits,	etc. • • •
<0.031	90	ALVAREZ	90 C	NA14	Photoproduction
$\Gamma(\phi\pi^+\pi^+\pi^-)/\Gamma(\phi\pi)$	+)			TECN	Γ ₁₃₃ /Γ ₁₃₀
VALUE	<u>LL%</u>	DUCUMENT ID	fite	<u>IECN</u>	
• • • we do not use the			, IITS	, mints,	
<0.0	90	FRABETTI	92	E087	γВе



 $\Gamma(\phi K^+)/\Gamma(\phi \pi^+)$ $\Gamma_{142}/\Gamma_{130}$ A doubly Cabibbo-suppressed decay with no simple spectator process possible VALUE DOCUMENT ID COMMENT <u>CL%</u> EVTS TECN $\gamma\,{
m Be},\,\overline{E}_\gamma\,pprox\,$ 220 <0.021 FRABETTI 90 95F E687 ${\sf GeV}$ • • • We do not use the following data for averages, fits, limits, etc. • $0.058^{+0.032}_{-0.026}{\pm}0.007$ ⁶³ ANJOS 92D E691 $\gamma \operatorname{Be}, \overline{E}_{\gamma} = 145$ GeV ⁶³ The evidence of ANJOS 92D is a small excess of events $(4.5^{+2.4}_{-2.0})$. $\Gamma(\pi^+ e^+ e^-)/\Gamma_{\text{total}}$ Γ_{143}/Γ A test for the $\Delta C = 1$ weak neutral current. Allowed by higher-order electroweak interactions. VALUE CL% EVTS DOCUMENT ID TECN COMMENT $< 6.6 \times 10^{-5}$ 90 AITALA 96 E791 $\pi^- N$ 500 GeV • • We do not use the following data for averages, fits, limits, etc. • • • $< 1.1 \times 10^{-4}$ 90 FRABETTI γ Be, $\overline{E}_{\gamma} \approx 220$ GeV 97B E687 $< 2.5 \times 10^{-3}$ 90в MRK2 е⁺е⁻ 29 GeV 90 WEIR $< 2.6 \times 10^{-3}$ 88 CLEO e^+e^- 10 GeV 90 39 HAAS $\Gamma(\pi^+\mu^+\mu^-)/\Gamma_{\text{total}}$ Γ_{144}/Γ A test for the $\Delta C = 1$ weak neutral current. Allowed by higher-order electroweak interactions. VALUE CL% EVTS DOCUMENT ID <u>TECN</u> <u>COMMENT</u> $<1.8 \times 10^{-5}$ 90 AITALA 96 E791 $\pi^- N$ 500 GeV • • We do not use the following data for averages, fits, limits, etc. • • • $< 8.9 \times 10^{-5}$ 90 γ Be, $\overline{E}_{\gamma} \approx 220$ GeV FRABETTI 97B E687 $< 2.2 \times 10^{-4}$ 90 π^- emulsion 600 GeV 0 KODAMA 95 E653 $< 5.9 \times 10^{-3}$ 90B MRK2 e^+e^- 29 GeV 90 WEIR $< 2.9 \times 10^{-3}$ 88 CLEO e^+e^- 10 GeV 90 HAAS 36 $\Gamma(\rho^+\mu^+\mu^-)/\Gamma_{\rm total}$ Γ_{145}/Γ A test for the $\Delta C = 1$ weak neutral current. Allowed by higher-order electroweak interactions. VALUE DOCUMENT ID TECN COMMENT CL% EVTS <5.6 × 10⁻⁴ 90 0 KODAMA 95 E653 π^- emulsion 600 GeV $\Gamma(K^+e^+e^-)/\Gamma_{\text{total}}$ Γ_{146}/Γ VALUE DOCUMENT ID CL% TECN COMMENT $<2.0 \times 10^{-4}$ γ Be, $\overline{E}_{\gamma} pprox 220 {
m ~GeV}$ 90 FRABETTI 97B E687 • • We do not use the following data for averages, fits, limits, etc. • • • $< 4.8 \times 10^{-3}$ 90B MRK2 e^+e^- 29 GeV 90 WEIR $\Gamma(K^+\mu^+\mu^-)/\Gamma_{\text{total}}$ Γ_{147}/Γ VALUE CL% EVTS DOCUMENT ID TECN COMMENT <9.7 × 10⁻⁵ 90 FRABETTI 97B E687 γ Be, $\overline{E}_{\gamma} \approx ~220~{
m GeV}$ • • • We do not use the following data for averages, fits, limits, etc. • • • $< 3.2 \times 10^{-4}$ 90 0 KODAMA 95 E653 π^- emulsion 600 GeV $< 9.2 \times 10^{-3}$ 90B MRK2 e^+e^- 29 GeV 90 WEIR HTTP://PDG.LBL.GOV Page 30 Created: 6/29/1998 12:20

 $\Gamma(\pi^+ e^+ \mu^-) / \Gamma_{\text{total}}$ Γ_{148}/Γ A test of lepton-family-number conservation. VALUE <u>CL%</u> DOCUMENT ID TECN COMMENT $<1.1 \times 10^{-4}$ γ Be, $\overline{E}_{\gamma} pprox 220$ GeV 90 FRABETTI 97B E687 • • • We do not use the following data for averages, fits, limits, etc. • • $< 3.3 \times 10^{-3}$ 90B MRK2 e⁺e⁻ 29 GeV 90 WEIR $\Gamma(\pi^+ e^- \mu^+) / \Gamma_{\text{total}}$ Γ_{140}/Γ A test of lepton-family-number conservation. VALUE CL% DOCUMENT ID <u>TECN</u><u>COMMENT</u> <1.3 × 10⁻⁴ 90 97B E687 γ Be, $\overline{E}_{\gamma} \approx 220$ GeV FRABETTI • • We do not use the following data for averages, fits, limits, etc. • • • $< 3.3 \times 10^{-3}$ WEIR 90B MRK2 e⁺e⁻ 29 GeV 90 $\Gamma(K^+e^+\mu^-)/\Gamma_{\text{total}}$ Γ_{150}/Γ A test of lepton-family-number conservation. <u>VALUE</u> CL% TECN COMMENT DOCUMENT ID <1.3 × 10⁻⁴ 90 97B E687 γ Be, $\overline{E}_{\gamma} \approx 220$ GeV FRABETTI • • • We do not use the following data for averages, fits, limits, etc. • • • $< 3.4 \times 10^{-3}$ 90 WEIR 90B MRK2 e^+e^- 29 GeV $\Gamma(K^+e^-\mu^+)/\Gamma_{\text{total}}$ Γ_{151}/Γ A test of lepton-family-number conservation. VALUE DOCUMENT ID TECN COMMENT <u>CL%</u> 97B E687 γ Be, $\overline{E}_{\gamma} \approx 220$ GeV $<1.2 \times 10^{-4}$ 90 FRABETTI • • • We do not use the following data for averages, fits, limits, etc. • • • $< 3.4 \times 10^{-3}$ 90 WEIR 90B MRK2 e^+e^- 29 GeV $\Gamma(\pi^- e^+ e^+) / \Gamma_{\text{total}}$ Γ_{152}/Γ A test of lepton-number conservation. VALUE <u>CL%</u> TECN COMMENT DOCUMENT ID <1.1 × 10⁻⁴ 90 97B E687 γ Be, $\overline{E}_{\gamma}\approx~220~{\rm GeV}$ FRABETTI • • • We do not use the following data for averages, fits, limits, etc. • • • $< 4.8 \times 10^{-3}$ 90B MRK2 e⁺e⁻ 29 GeV 90 WEIR $\Gamma(\pi^{-}\mu^{+}\mu^{+})/\Gamma_{\text{total}}$ Γ_{153}/Γ A test of lepton-number conservation. VALUE <u>CL% EVTS</u> DOCUMENT ID <u>TECN</u><u>COMMENT</u> $< 8.7 \times 10^{-5}$ 97B E687 γ Be, $\overline{E}_{\gamma} \approx 220$ GeV 90 FRABETTI \bullet \bullet \bullet We do not use the following data for averages, fits, limits, etc. \bullet \bullet $< 2.2 \times 10^{-4}$ 90 0 KODAMA 95 E653 π^- emulsion 600 GeV $< 6.8 \times 10^{-3}$ 90B MRK2 e⁺e⁻ 29 GeV 90 WEIR $\Gamma(\pi^- e^+ \mu^+) / \Gamma_{\text{total}}$ Γ_{154}/Γ A test of lepton-number conservation. VALUE <u>DOCUMENT I</u>D TECN COMMENT CL% $<1.1 \times 10^{-4}$ γ Be, $\overline{E}_{\gamma}pprox$ 220 GeV FRABETTI 90 97B E687 • • • We do not use the following data for averages, fits, limits, etc. • • • $< 3.7 \times 10^{-3}$ 90B MRK2 e⁺e⁻ 29 GeV WEIR 90 HTTP://PDG.LBL.GOV Page 31 Created: 6/29/1998 12:20

$\Gamma(\rho^-\mu^+\mu^+)/\Gamma$ A test of le	total pton-n	umber cons	ervation.			Г ₁₅₅ /Г	
VALUE	<u>CL%</u>	<u>EVTS</u>	DOCUMENT ID		TECN	COMMENT	
<5.6 × 10 ⁻⁴	90	0	KODAMA	95	E653	π^- emulsion 600 GeV	
Γ(K ⁻ e ⁺ e ⁺)/I A test of le	total	umber cons	ervation.			Г ₁₅₆ /Г	
VALUE		<u>CL%</u>	DOCUMENT ID		TECN	COMMENT	
$< 1.2 \times 10^{-4}$		90	FRABETTI	97	в Е687	γ Be, $\overline{\textit{E}}_{\gamma}pprox$ 220 GeV	
$\bullet \bullet \bullet$ We do not	use the	e following o	data for averages	s, fits	, limits,	etc. • • •	
$< 9.1 imes 10^{-3}$		90	WEIR	90	B MRK	2 e ⁺ e ⁻ 29 GeV	
$\frac{\Gamma(K^-\mu^+\mu^+)}{A \text{ test of le}}$	Ftotal pton-n	umber conse _ <u>EVTS</u>	ervation. <u>DOCUMENT ID</u>		TECN	Г ₁₅₇ /Г	
<1.2 × 10 ⁻⁴	90		FRABETTI	97 B	E687	γ Be, $\overline{\textit{E}}_{\gamma}pprox$ 220 GeV	
• • • We do not	use the	e following o	data for averages	s, fits	, limits,	etc. • • •	
$\substack{<3.2\times10^{-4}\\<4.3\times10^{-3}}$	90 90	0	KODAMA WEIR	95 90в	E653 MRK2	π^- emulsion 600 GeV e^+e^- 29 GeV	
$\Gamma(\kappa^- e^+ \mu^+)/A$ test of le	F_{total} pton-n	umber conse	ervation.			Г ₁₅₈ /Г	
VALUE		<u>CL%</u>	DOCUMENT ID		TECN	COMMENT	
<1.3 × 10		90	FRABETTI	97 B	E687	γ Be, ${\it E}_{\gamma}pprox$ 220 GeV	
• • • We do not	use the	e following o	data for averages	s, fits	, limits,	etc. • • •	
$< 4.0 \times 10^{-3}$		90	WEIR	90 B	MRK2	e ⁺ e ⁻ 29 GeV	
Γ(K*(892) ⁻ μ ⁻ A test of le	⁺ μ ⁺)	/ F_{total} umber conse	ervation.			Γ ₁₅₉ /Γ	
VALUE	<u>CL%</u>	EVTS	DOCUMENT ID		TECN	COMMENT	
<8.5 × 10 ⁻⁴	90	0	KODAMA	95	E653	π^- emulsion 600 GeV	

D^{\pm} CP-VIOLATING DECAY-RATE ASYMMETRIES

 $A_{CP}(K^+K^-\pi^{\pm})$ in $D^{\pm} \rightarrow K^+K^-\pi^{\pm}$ This is the difference between D^+ and D^- partial widths for these modes divided by the sum of the widths. DOCUMENT ID TECN COMMENT VALUE -0.017 ± 0.027 OUR AVERAGE ⁶⁴ AITALA $-0.062 < A_{CP} < +0.034 (90\% \text{ CL})$ -0.014 ± 0.029 97B E791 $-0.14 < A_{CP} < +0.081 (90\% \text{ CL})$ ⁶⁴ FRABETTI 941 E687 $-0.031 \!\pm\! 0.068$ ⁶⁴ FRABETTI 941 and AITALA 97B measure $N(D^+ \rightarrow K^-K^+\pi^+)/N(D^+ \rightarrow K^+K^+\pi^+)/N(D^+ \rightarrow K^+K^+\pi^+)/N(D^+ \rightarrow K^+K^+\pi^+)/N(D^+ \rightarrow K^+K^+\pi^+)/N(D^+ A^+ \rightarrow K^+\pi^+)/N(D^+ A^+ \rightarrow K^+\pi^+)/N(D^+ A^+ A^+)/N(D^+ A^+ A^+)/N(D^+ A^+ A^+)/N(D^+ A^+$ $K^{-}\pi^{+}\pi^{+}$), the ratio of numbers of events observed, and similarly for the D^{-} .

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 $A_{CP}(K^{\pm}K^{*0})$ in $D^+ \to K^+\overline{K}^{*0}$ and $D^- \to K^-K^{*0}$ This is the difference between D^+ and D^- partial widths for these modes divided by the sum of the widths. DOCUMENT ID _____ TECN COMMENT VALUE -0.02 ± 0.05 OUR AVERAGE $-0.092 < A_{CP} < +0.072$ (90% CL) ⁶⁵ AITALA -0.010 ± 0.050 97B E791 941 E687 $-0.33 < A_{CP} < +0.094$ (90% CL) ⁶⁵ FRABETTI -0.12 ± 0.13 ⁶⁵ FRABETTI 94I and AITALA 97B measure $N(D^+ \rightarrow K^+ \overline{K}^* (892)^0) / N(D^+ \rightarrow K^+ \overline{K}^* (892)^0)$ $K^{-}\pi^{+}\pi^{+}$), the ratio of numbers of events observed, and similarly for the D^{-} . $A_{CP}(\phi \pi^{\pm})$ in $D^{\pm} \rightarrow \phi \pi^{\pm}$ This is the difference between D^+ and D^- partial widths for these modes divided by the sum of the widths. <u>DOCUMENT</u> ID VALUE TECN COMMENT -0.014 ± 0.033 OUR AVERAGE ⁶⁶ AITALA 97B E791 −0.087 <*A*_{CP} < +0.031 (90% CL) -0.028 ± 0.036 941 E687 $-0.075 < A_{CP} < +0.21$ (90% CL) ⁶⁶ FRABETTI $+0.066\pm0.086$ ⁶⁶ FRABETTI 94I and AITALA 97B measure $N(D^+ \rightarrow \phi \pi^+)/N(D^+ \rightarrow K^- \pi^+ \pi^+)$, the ratio of numbers of events observed, and similarly for the D^- . $A_{CP}(\pi^+\pi^-\pi^\pm)$ in $D^\pm \to \pi^+\pi^-\pi^\pm$ This is the difference between D^+ and D^- partial widths for these modes divided by the sum of the widths. VALUE DOCUMENT ID TECN COMMENT 97в Е791 -0.086 <*A_{CP}* < +0.052 (90% СL) ⁶⁷ AITALA -0.017 ± 0.042 ⁶⁷ AITALA 97B measure $N(D^+ \rightarrow \pi^+ \pi^- \pi^+)/N(D^+ \rightarrow K^- \pi^+ \pi^+)$, the ratio of numbers of events observed, and similarly for the D^- .

D^{\pm} PRODUCTION CROSS SECTION AT $\psi(3770)$

A compilation of the cross sections for the direct production of D^{\pm} mesons at or near the $\psi(3770)$ peak in e^+e^- production.

VALUE (nanobarns)	DOCUMENT ID		TECN	COMMENT
• • • We do not use the followin	g data for averages	, fits	, limits,	etc. • • •
$4.2 \pm 0.6 \pm 0.3$	⁶⁸ ADLER	88C	MRK3	e ⁺ e ⁻ 3.768 GeV
5.5 ± 1.0	⁶⁹ PARTRIDGE	84	CBAL	e^+e^- 3.771 GeV
$6.00\!\pm\!0.72\!\pm\!1.02$	⁷⁰ SCHINDLER	80	MRK2	e^+e^- 3.771 GeV
9.1 ±2.0	⁷¹ PERUZZI	77	MRK1	e^+e^- 3.774 GeV

⁶⁸ This measurement compares events with one detected D to those with two detected D mesons, to determine the the absolute cross section. ADLER 88C measure the ratio of cross sections (neutral to charged) to be $1.36 \pm 0.23 \pm 0.14$. This measurement does not include the decays of the $\psi(3770)$ not associated with charmed particle production.

⁶⁹ This measurement comes from a scan of the $\psi(3770)$ resonance and a fit to the cross section. PARTRIDGE 84 measures 6.4 \pm 1.15 nb for the cross section. We take the phase space division of neutral and charged *D* mesons in $\psi(3770)$ decay to be 1.33, and we assume that the $\psi(3770)$ is an isosinglet to evaluate the cross sections. The noncharm decays (e.g. radiative) of the $\psi(3770)$ are included in this measurement and may amount to a few percent correction.

⁷⁰ This measurement comes from a scan of the $\psi(3770)$ resonance and a fit to the cross section. SCHINDLER 80 assume the phase space division of neutral and charged D

mesons in $\psi(3770)$ decay to be 1.33, and that the $\psi(3770)$ is an isosinglet. The noncharm decays (e.g. radiative) of the $\psi(3770)$ are included in this measurement and may amount to a few percent correction.

⁷¹ This measurement comes from a scan of the $\psi(3770)$ resonance and a fit to the cross section. The phase space division of neutral and charged *D* mesons in $\psi(3770)$ decay is taken to be 1.33, and $\psi(3770)$ is assumed to be an isosinglet. The noncharm decays (e.g. radiative) of the $\psi(3770)$ are included in this measurement and may amount to a few percent correction. We exclude this measurement from the average because of uncertainties in the contamination from τ lepton pairs. Also see RAPIDIS 77.

	$D^+ \rightarrow \overline{k}$	<u></u> α*(892) ⁰ ℓ ⁺ ν _ℓ F	ORM FACT	ORS
$r_2\equiv A_2(0)/A_1(0)$	in <i>D</i> + –	$\rightarrow \overline{K}^*(892)^0 \ell^+ \iota$	4	
VALUE	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	COMMENT
0.72±0.09 OUR AVE		72	005 E701	
$0.71 \pm 0.08 \pm 0.09$ 0.78 ± 0.18 ± 0.10	3000	73 edadetti	988 E791	π nucleus, 500 GeV
$0.78 \pm 0.18 \pm 0.10$	074	72	93E E007	YDE, 220 GEV
$0.82 + 0.22 \pm 0.11$	305	⁷³ KODAMA	92 E653	π^- N, 600 GeV
$0.0 \ \pm 0.5 \ \pm 0.2$	183	⁷² ANJOS	90e E691	$\gamma\mathrm{Be}$, 90–260 GeV
⁷² AITALA 98B and	ANJOS 90	E use $D^+ \to \overline{K}^*$	$(892)^0 e^+ \nu_0$	decays.
⁷³ FRABETTI 93E a	nd KODAN	MA 92 use $D^+ \rightarrow$	$\bar{K}^{*}(892)^{0}\mu^{+}$	ν_{μ} decays.
				μ ,
$r_{\rm v} \equiv V(0)/A_1(0)$	in $D^+ \rightarrow$	$\overline{K}^{*}(892)^{0}\ell^{+}\nu_{\ell}$	<i>p</i>	
VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
1.85 ± 0.12 OUR AVE	RAGE			
$1.84\!\pm\!0.11\!\pm\!0.08$	3000	74 AITALA	98b E791	π^- nucleus, 500 GeV
$1.74\!\pm\!0.27\!\pm\!0.28$	874	⁷⁵ FRABETTI	93E E687	$\gamma{ m Be}$, 220 GeV
$2.00^{+0.34}_{-0.32}\pm 0.16$	305	⁷⁵ KODAMA	92 E653	π^- N, 600 GeV
$2.0 \pm 0.6 \pm 0.3$	183	⁷⁴ ANJOS	90e E691	γ Be, 90–260 GeV
74 AITALA 98B and	ANJOS 90	Fuse $D^+ \to \overline{K}^*$	$(892)^{0}e^{+}\nu$	decays
75 ERABETTI 025		$\Delta \Delta \Omega^2$ use D^+	$\overline{K}*(802)0+$	
		$Vir J2$ use $D^{+} \rightarrow$	$(092) \mu$	$^{\nu}\mu$ uccays.
Γ_{I}/Γ_{T} in $D^{+} \rightarrow$	<u>K</u> *(892)	$0\ell^+\nu_\ell$		
VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
1.23±0.13 OUR AVE	RAGE			
$1.20\!\pm\!0.13\!\pm\!0.13$	874	⁷⁶ FRABETTI	93E E687	$\gamma{\sf Be}$, 220 GeV
$1.18\!\pm\!0.18\!\pm\!0.08$	305	⁷⁶ KODAMA	92 E653	π^- N, 600 GeV

1.8 $^{+0.6}_{-0.4}$ ± 0.3 183 ⁷⁷ ANJOS 90E E691 γ Be, 90–260 GeV

⁷⁶ FRABETTI 93E and KODAMA 92 use $D^+ \rightarrow \overline{K}^*(892)^0 \mu^+ \nu_{\mu}$ decays. Γ_L/Γ_T is evaluated for a lepton mass of zero.

⁷⁷ ANJOS 90E uses $D^+ \rightarrow \overline{K}^*(892)^0 e^+ \nu_e$ decays.

Γ_+/Γ in $D^+ \rightarrow$	<i>K</i>*(892)⁰	$\ell^+ \nu_\ell$			
VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.16 ± 0.04 OUR AVE	RAGE				
$0.16\!\pm\!0.05\!\pm\!0.02$	305	⁷⁸ KODAMA	92	E653	π^- N, 600 GeV
$0.15^{+0.07}_{-0.05}{\pm}0.03$	183	⁷⁹ ANJOS	90e	E691	$\gamma\mathrm{Be}$, 90–260 GeV
⁷⁸ KODAMA 92 uses	$s D^+ \rightarrow \overline{P}$	$\overline{\kappa}^{*}(892)^{0} \mu^{+} \nu_{\mu} d$	ecays.	Γ_+/Γ	is evaluated for a lepton
mass of zero. 79 ANJOS 90E uses <i>l</i>	$D^+ \rightarrow \overline{K}^*$	$(892)^0 e^+ \nu_e deca$	ays.		

D^{\pm} REFERENCES

AITALA	98B	PRL 80 1393	+Amato, Anjos, Appel+	(FNAL E791 Collab.)
PDG	98	EPJ C3 1	C. Caso+	· · · · · · · · · · · · · · · · · · ·
AITAI A	97	PL B397 325	+Amato Anios Appel+	(ENAL_E791_Collab_)
	07B	PL B403 377	Amato Anios Appol	(ENAL E701 Collab.)
	970	DL D403 377	-Amato, Anjos, Apper-	$(\Gamma NAL E791 Collab.)$
	970	PL D404 107	+Amato, Anjos, Apper+	(FINAL E791 COND.)
BARIELI	97	PL B405 373	+Csorna, Jain, Marka+	(CLEO Collab.)
BISHAI	97	PRL 78 3261	+Fast, Gerndt, Hinson+	(CLEO Collab.)
FRABETTI	97	PL B391 235	+Cheung, Cumalat+	(FNAL E687 Collab.)
FRABETTI	97B	PL B398 239	+Cheung, Cumalat+	(FNAL E687 Collab.)
FRABETTI	97C	PL B401 131	+Cheung, Cumalat+	(FNAL E687 Collab.)
FRABETTI	97D	PL B407 79	+Cheung Cumalat+	(ENAL E687 Collab)
ΔΙΤΔΙ Δ	06	PRI 76 364	\perp Amoto Anios \perp	(ENAL E701 Collab.)
	060	DI D274 240	Hamachar Hafmann	(APCUS Collab.)
	90C	DL D240 262		
	95	PL B349 303	+ Yamamoto	(NDAW, HARV)
FRABETTI	95	PL B346 199	+Cheung, Cumalat+	(FNAL E687 Collab.)
FRABETTI	95B	PL B351 591	+Cheung, Cumalat+	(FNAL E687 Collab.)
FRABETTI	95E	PL B359 403	+Cheung, Cumalat+	(FNAL E687 Collab.)
FRABETTI	95F	PL B363 259	+Cheung, Cumalat+	(FNAL E687 Collab.)
KODAMA	95	PL B345 85	+Ushida. Mokhtarani+	(FNAL E653 Collab.)
ALBRECHT	941	7PHY C64 375	+Hamacher Hofmann+	(ARGUS Collab.)
ALEEV/	0/	PAN 57 1370	+Balandin⊥	(Serpukhov BIS-2 Collab.)
	54	Translated from VE 57	1443	(Selpukilov DIS-2 Collab.)
BALEST	0/	PRI 72 2328	\pm Cho Dooudi Ford \pm	(CLEO_Collab_)
	040	DI D202 450		(CLEO Collab.)
	94D	FL D323 439	+Cleung, Cumalat+	(FNAL ECOT COND.)
FRABETTI	94G	PL B331 217	+Cheung, Cumalat+	(FNAL E087 Collab.)
FRABELTI	941	PR D50 R2953	+Cheung, Cumalat+	(FNAL E687 Collab.)
ABE	93E	PL B313 288	+Amako, Arai, Arima, Asano+	(VENUS Collab.)
ADAMOVICH	93	PL B305 177	+Alexandrov, Antinori+	(CERN WA82 Collab.)
AKERIB	93	PRL 71 3070	+Barish, Chadha, Chan+	(CLEO Collab.)
ALAM	93	PRL 71 1311	+Kim, Nemati, O'Neill+	(CLEO_Collab.)
AN IOS	93	PR D48 56	+Appel Bean Bracker+	(ENAL E691 Collab)
REAN	03C	PL B317 647	+Gronberg Kutschke Menary+	(CLEO Collab.)
	02E	DI D207 262	Crim Paolono Vagor	(ENAL E697 Collab.)
	93L	DL D212 260	-Gilli, Labida Makhtarani	(FNAL E652 Callab.)
KODAMA	93D	PL D313 200	+Oshida, Mokhtarani+	(FINAL E053 COND.)
KODAMA	93C	PL B316 455	+Ushida, Mokhtarani+	(FNAL E653 Collab.)
SELEN	93	PRL 71 1973	+Sadoff, Ammar, Ball+	(CLEO Collab.)
ALBRECHT	92B	ZPHY C53 361	+Ehrlichmann, Hamacher, Krueger-	+ (ARGUS Collab.)
ALBRECHT	92F	PL B278 202	+Ehrlichmann, Hamacher+	(ARGUS Collab.)
ANJOS	92	PR D45 R2177	+Appel, Bean, Bracker+	(FNAL E691 Collab.)
ANJOS	92C	PR D46 1941	+Appel, Bean, Bracker+	(FNAL E691 Collab.)
ANIOS	92D	PRI 69 2892	+Appel Bean Bediaga+	(ENAL E691 Collab.)
BARLAG	020	7PHV (55 383	+Becker Bozek Boehringer+	(ACCMOR Collab.)
Alco	00D		Parlag Packer Pachringer Pach	(ACCMOR Collab.)
	90D		Darlag, Decker, Doenringer, Dosir	(Mark III Callab.)
COFFINIAN	92B	PR D45 2190	+DeJongn, Dubois, Eigen+	(Mark III Collab.)
DAOUDI	92	PR D45 3965	+Ford, Johnson, Lingel+	(CLEO Collab.)
FRABETTI	92	PL B281 167	+Bogart, Cheung, Culy+	(FNAL E687 Collab.)
KODAMA	92	PL B274 246	+Ushida, Mokhtarani+	(FNAL E653 Collab.)
KODAMA	92C	PL B286 187	+Ushida, Mokhtarani+	(FNAL E653 Collab.)
ADAMOVICH	91	PL B268 142	+Alexandrov, Antinori, Barberis+	(WA82 Collab.)
ALBRECHT	91	PL B255 634	+Ehrlichmann, Hamacher, Krueger	+ (ARGUS Collab)
ALVARE7	91	PI B255 639	+Barate Bloch Bonamy+	(CERN NA14/2 Collab.)
ALVARE7	01R	7PHY (50 11	+Barate Bloch Bonamy+	(CERN NA14/2 Collab.)
	01	DD D44 2202	- Paringer, Connage, Davis	$(C \models O \models $
	91 01 D	DD D42 D2062	-Daninger, Coppage, Davis+	(CLEU CONAD.)
ANJOS	91D	FR 143 K2003	+Appel, Bean, Bracker+	(FNAL E091 COllab.)
ANJUS	91C	PKL 0/ 150/	+Appel, Bean, Bracker+	(FNAL-TPS Collab.)

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RAI				
	91	PRL 66 1011	+Bolton, Brown, Bunnell+ (Mark III Collab.)
COFEMAN	Q1	PL B263 135	+Delongh Dubois Figen Hitlin+	Mark III Collab)
	01	DL D263 F04	Besongii, Bubols, Eigen, Intini (
FRADETTI	91	PL D203 504	+Dogart, Cheung, Culy+ (FN/	AL EUGT CONAD.)
ALVAREZ	90	ZPHY C47 539	+Barate, Bloch, Bonamy+ (CERN	NA14/2 Collab.)
ALVAREZ	90C	PL B246 261	+Barate, Bloch, Bonamy+ (CERN	NA14/2 Collab.)
ANIOS	90C	PR D41 2705	+Appel Bean+ (EN)	Al E691 Collab
	000	PP D42 2414	Appel, Bean, Procker (FN)	$\Lambda = E601 \text{ Collab.}$
ANJOS	900	FK D42 2414	+Appel, Beall, Bracker+ (FN)	AL ECOL CUILD.)
ANJOS	90E	PRL 65 2630	+Appel, Bean, Bracker+ (FN/	AL E691 Collab.)
BARLAG	90C	ZPHY C46 563	+Becker, Boehringer, Bosman+ (A	CCMOR Collab.)
WEIR	90B	PR D41 1384	+Klein, Abrams, Adolphsen, Akerlof+	(Mark II Collab.)
	00	DDI 62 125	Annel Bean Bracker (EN)	AL E601 Collab
ANJOS	09	FRE 02 125	+Appel, Beall, Bracker+ (FN)	AL ECOL CUIAD.
ANJOS	89B	PRL 62 722	+Appel, Bean, Bracker+ (FN/	AL E691 Collab.)
ANJOS	89E	PL B223 267	+Appel, Bean, Bracker+ (FN/	AL E691 Collab.)
ADLER	88B	PRL 60 1375	+Becker, Blavlock+ (Mark III Collab.
ADLER	880	PRI 60 89	+Becker Blaylock+	Mark III Collab
	000			
ALBRECHT	881	PL B210 207	+Boeckmann, Glaeser+	(ARGUS Collab.)
ANJOS	88	PRL 60 897	+Appel+ (FN/	AL E691 Collab.)
AOKI	88	PL B209 113	+Arnold, Baroni+	(WA75 Collab.)
HAAS	88	PRI 60 1614	+Hempstead lensen $+$	(CLEO, Collab.)
	00	DDI 60 2597	Woir Abrama Amidai	(Mark II Collab.)
	00	T RE 00 2307		
RAAB	88	PR D37 2391	+Anjos, Appel, Bracker+ (FN/	AL E691 Collab.)
ADAMOVICH	87	EPL 4 887	+Alexandrov, Bolta+ (Photon I	Emulsion Collab.)
ADI FR	87	PL B196 107	+Becker Blaylock Bolton+	Mark III Collab)
	070	DL D102 140	Aguilar Panitaz Allicon I (LE	PC EUS Collab.)
AGUILAN	010	TE D195 140	Aguilar-Defiltez, Allison+ (LE	
Also	88R	ZPHY C40 321	Aguilar-Benitez, Allison, Bailly+ (LE	BC-EHS Collab.)
AGUILAR	87E	ZPHY C36 551	Aguilar-Benitez, Allison+ (LE	BC-EHS Collab.)
Also	88B	ZPHY C40 321	Aguilar-Benitez, Allison, Bailly+ (LE	BC-EHS Collab.
AGUILAR-	87F	7PHY C36 559	Aguilar-Benitez Allison+ (LF	BC-FHS Collab
	001	ZDUV C20 500 -		DC END Conab.)
Also	88	ZPHY C38 520 e	erratum	
BARLAG	87B	ZPHY C37 17	+Becker, Boehringer, Bosman+ (A	(CCMOR Collab.)
BARTEL	87	ZPHY C33 339	+Becker, Felst, Haidt $+$	(JADE Collab.)
CSORNA	87	PL B191 318	+Mestaver Panvini Word+	(CLEO_Collab)
	87B	7DHV (35 151	Bailov Backart (A	(CMOR Collab.)
	010			
ABE	86	PR D33 1	+ (SLAC Hybrid Facility	Photon Collab.)
AGUILAR	86B	ZPHY C31 491	Aguilar-Benitez, Allison+ (LE	BC-EHS Collab.)
BALTRUSAIT	86E	PRL 56 2140	Baltrusaitis, Becker, Blaylock, Brown+ (Mark III Collab.)
ΡΔΙ	86	PR D33 2708	+Atwood Barish Bonneaud+	(DELCO Collab)
	00	TR D55 2100	Transod, Dansh, Donneaud	
AILIANA	U L	7DUV (27 20	Alston Cornigst Radtka Rakkon I	(TDC Collab)
DALTDUCALT	85	ZPHY C27 39	+Alston-Garnjost, Badtke, Bakken+	(TPC Collab.)
BALTRUSAIT	85 85B	ZPHY C27 39 PRL 54 1976	+Alston-Garnjost, Badtke, Bakken+ Baltrusaitis, Becker, Blaylock, Brown+ ((TPC Collab.) Mark III Collab.)
BALTRUSAIT BALTRUSAIT	85 85B 85E	ZPHY C27 39 PRL 54 1976 PRL 55 150	+Alston-Garnjost, Badtke, Bakken+ Baltrusaitis, Becker, Blaylock, Brown+ (Baltrusaitis, Becker, Blaylock, Brown+ ((TPC Collab.) Mark III Collab.) Mark III Collab.)
BALTRUSAIT BALTRUSAIT BARTEL	85 85B 85E 85J	ZPHY C27 39 PRL 54 1976 PRL 55 150 PL 163B 277	+Alston-Garnjost, Badtke, Bakken+ Baltrusaitis, Becker, Blaylock, Brown+ (Baltrusaitis, Becker, Blaylock, Brown+ (+Becker, Cords, Felst+	(TPC Collab.) Mark III Collab.) Mark III Collab.) (JADE Collab.)
BALTRUSAIT BALTRUSAIT BARTEL	85 85B 85E 85J 84	ZPHY C27 39 PRL 54 1976 PRL 55 150 PL 163B 277 PL 140B 110	+Alston-Garnjost, Badtke, Bakken+ Baltrusaitis, Becker, Blaylock, Brown+ (Baltrusaitis, Becker, Blaylock, Brown+ (+Becker, Cords, Felst+ +Alaxandrov, Bolta, Bravo+ (CEB)	(TPC Collab.) Mark III Collab.) Mark III Collab.) (JADE Collab.) N W458 Collab.)
BALTRUSAIT BALTRUSAIT BARTEL ADAMOVICH	85 85B 85E 85J 84	ZPHY C27 39 PRL 54 1976 PRL 55 150 PL 163B 277 PL 140B 119 ZPUV C22 210	+Alston-Garnjost, Badtke, Bakken+ Baltrusaitis, Becker, Blaylock, Brown+ (Baltrusaitis, Becker, Blaylock, Brown+ (+Becker, Cords, Felst+ +Alexandrov, Bolta, Bravo+ (CERI	(TPC Collab.) Mark III Collab.) Mark III Collab.) (JADE Collab.) N WA58 Collab.)
BALTRUSAIT BALTRUSAIT BARTEL ADAMOVICH ALTHOFF	85 85B 85E 85J 84 84G	ZPHY C27 39 PRL 54 1976 PRL 55 150 PL 163B 277 PL 140B 119 ZPHY C22 219	+Alston-Garnjost, Badtke, Bakken+ Baltrusaitis, Becker, Blaylock, Brown+ (Baltrusaitis, Becker, Blaylock, Brown+ (+Becker, Cords, Felst+ +Alexandrov, Bolta, Bravo+ (CERI +Braunschweig, Kirschfink+	(TPC Collab.) Mark III Collab.) Mark III Collab.) (JADE Collab.) N WA58 Collab.) (TASSO Collab.)
BALTRUSAIT BALTRUSAIT BARTEL ADAMOVICH ALTHOFF ALTHOFF	85 85B 85E 85J 84 84G 84J	ZPHY C27 39 PRL 54 1976 PRL 55 150 PL 163B 277 PL 140B 119 ZPHY C22 219 PL 146B 443	+Alston-Garnjost, Badtke, Bakken+ Baltrusaitis, Becker, Blaylock, Brown+ (Baltrusaitis, Becker, Blaylock, Brown+ (+Becker, Cords, Felst+ +Alexandrov, Bolta, Bravo+ (CERI +Braunschweig, Kirschfink+ +Branschweig, Kirschfink+	(TPC Collab.) Mark III Collab.) Mark III Collab.) (JADE Collab.) N WA58 Collab.) (TASSO Collab.) (TASSO Collab.)
BALTRUSAIT BALTRUSAIT BARTEL ADAMOVICH ALTHOFF ALTHOFF DERRICK	85 85B 85E 85J 84 84G 84J 84	ZPHY C27 39 PRL 54 1976 PRL 55 150 PL 163B 277 PL 140B 119 ZPHY C22 219 PL 146B 443 PRL 53 1971	+Alston-Garnjost, Badtke, Bakken+ Baltrusaitis, Becker, Blaylock, Brown+ (Baltrusaitis, Becker, Blaylock, Brown+ (+Becker, Cords, Felst+ +Alexandrov, Bolta, Bravo+ (CERI +Braunschweig, Kirschfink+ +Branschweig, Kirschfink+ +Fernandez, Fries, Hyman+	(TPC Collab.) Mark III Collab.) (JADE Collab.) N WA58 Collab.) (TASSO Collab.) (TASSO Collab.) (HRS Collab.)
BALTRUSAIT BALTRUSAIT BARTEL ADAMOVICH ALTHOFF ALTHOFF DERRICK KOOP	85 85E 85E 85J 84 84G 84J 84 84	ZPHY C27 39 PRL 54 1976 PRL 55 150 PL 163B 277 PL 140B 119 ZPHY C22 219 PL 146B 443 PRL 53 1971 PRL 52 970	+Alston-Garnjost, Badtke, Bakken+ Baltrusaitis, Becker, Blaylock, Brown+ (Baltrusaitis, Becker, Blaylock, Brown+ (+Becker, Cords, Felst+ +Alexandrov, Bolta, Bravo+ (CERI +Braunschweig, Kirschfink+ +Branschweig, Kirschfink+ +Fernandez, Fries, Hyman+ +Sakuda, Atwood, Baillon+	(TPC Collab.) Mark III Collab.) (JADE Collab.) (JADE Collab.) (TASSO Collab.) (TASSO Collab.) (TASSO Collab.) (HRS Collab.) (DELCO Collab.)
BALTRUSAIT BALTRUSAIT BARTEL ADAMOVICH ALTHOFF ALTHOFF DERRICK KOOP PARTRIDCE	85 85B 85E 85J 84 84G 84J 84 84	ZPHY C27 39 PRL 54 1976 PRL 55 150 PL 163B 277 PL 140B 119 ZPHY C22 219 PL 146B 443 PRL 53 1971 PRL 52 970 Thesis CALT 68 1	+Alston-Garnjost, Badtke, Bakken+ Baltrusaitis, Becker, Blaylock, Brown+ (Baltrusaitis, Becker, Blaylock, Brown+ (+Becker, Cords, Felst+ +Alexandrov, Bolta, Bravo+ (CERI +Braunschweig, Kirschfink+ +Branschweig, Kirschfink+ +Fernandez, Fries, Hyman+ +Sakuda, Atwood, Baillon+	(TPC Collab.) Mark III Collab.) Mark III Collab.) (JADE Collab.) N WA58 Collab.) (TASSO Collab.) (TASSO Collab.) (HRS Collab.) (DELCO Collab.)
BALTRUSAIT BALTRUSAIT BARTEL ADAMOVICH ALTHOFF ALTHOFF DERRICK KOOP PARTRIDGE	85 85B 85E 85J 84 84G 84G 84J 84 84 84	ZPHY C27 39 PRL 54 1976 PRL 55 150 PL 163B 277 PL 140B 119 ZPHY C22 219 PL 146B 443 PRL 53 1971 PRL 52 970 Thesis CALT-68-1	+Alston-Garnjost, Badtke, Bakken+ Baltrusaitis, Becker, Blaylock, Brown+ (Baltrusaitis, Becker, Blaylock, Brown+ (+Becker, Cords, Felst+ +Alexandrov, Bolta, Bravo+ (CERI +Braunschweig, Kirschfink+ +Branschweig, Kirschfink+ +Fernandez, Fries, Hyman+ +Sakuda, Atwood, Baillon+ (Cry	(TPC Collab.) Mark III Collab.) (JADE Collab.) N WA58 Collab.) (TASSO Collab.) (TASSO Collab.) (TASSO Collab.) (HRS Collab.) (DELCO Collab.) stal Ball Collab.)
BALTRUSAIT BALTRUSAIT BARTEL ADAMOVICH ALTHOFF DERRICK KOOP PARTRIDGE AGUILAR	85 85B 85E 85J 84 84G 84G 84J 84 84 84 84 83B	ZPHY C27 39 PRL 54 1976 PRL 55 150 PL 163B 277 PL 140B 119 ZPHY C22 219 PL 146B 443 PRL 53 1971 PRL 52 970 Thesis CALT-68-1 PL 123B 98	+Alston-Garnjost, Badtke, Bakken+ Baltrusaitis, Becker, Blaylock, Brown+ (Baltrusaitis, Becker, Blaylock, Brown+ (+Becker, Cords, Felst+ +Alexandrov, Bolta, Bravo+ (CERI +Braunschweig, Kirschfink+ +Branschweig, Kirschfink+ +Fernandez, Fries, Hyman+ +Sakuda, Atwood, Baillon+ .150 (Cry Aguilar-Benitez, Allison+ (LE	(TPC Collab.) Mark III Collab.) (JADE Collab.) N WA58 Collab.) (TASSO Collab.) (TASSO Collab.) (TASSO Collab.) (HRS Collab.) (DELCO Collab.) stal Ball Collab.) (EC-EHS Collab.)
BALTRUSAIT BALTRUSAIT BARTEL ADAMOVICH ALTHOFF ALTHOFF DERRICK KOOP PARTRIDGE AGUILAR AUBERT	85 85B 85E 85J 84 84G 84G 84J 84 84 84 83B 83	ZPHY C27 39 PRL 54 1976 PRL 55 150 PL 163B 277 PL 140B 119 ZPHY C22 219 PL 146B 443 PRL 53 1971 PRL 52 970 Thesis CALT-68-1 PL 123B 98 NP B213 31	+Alston-Garnjost, Badtke, Bakken+ Baltrusaitis, Becker, Blaylock, Brown+ (Baltrusaitis, Becker, Blaylock, Brown+ (+Becker, Cords, Felst+ +Alexandrov, Bolta, Bravo+ (CERI +Braunschweig, Kirschfink+ +Branschweig, Kirschfink+ +Fernandez, Fries, Hyman+ +Sakuda, Atwood, Baillon+ .150 Aguilar-Benitez, Allison+ (LE +Bassompierre, Becks, Best+	(TPC Collab.) Mark III Collab.) (JADE Collab.) (JADE Collab.) (TASSO Collab.) (TASSO Collab.) (TASSO Collab.) (HRS Collab.) (DELCO Collab.) stal Ball Collab.) (EMC Collab.)
BALTRUSAIT BALTRUSAIT BARTEL ADAMOVICH ALTHOFF ALTHOFF DERRICK KOOP PARTRIDGE AGUILAR AUBERT PARTRIDGE	85 85B 85E 85J 84 84G 84J 84 84 84 84 83B 83 83 81	ZPHY C27 39 PRL 54 1976 PRL 55 150 PL 163B 277 PL 140B 119 ZPHY C22 219 PL 146B 443 PRL 53 1971 PRL 52 970 Thesis CALT-68-1 PL 123B 98 NP B213 31 PRL 47 760	+Alston-Garnjost, Badtke, Bakken+ Baltrusaitis, Becker, Blaylock, Brown+ (Baltrusaitis, Becker, Blaylock, Brown+ (+Becker, Cords, Felst+ +Alexandrov, Bolta, Bravo+ (CERI +Braunschweig, Kirschfink+ +Branschweig, Kirschfink+ +Fernandez, Fries, Hyman+ +Sakuda, Atwood, Baillon+ (Cry Aguilar-Benitez, Allison+ +Bassompierre, Becks, Best+ +Peck, Porter, Gu+ (Cry	(TPC Collab.) Mark III Collab.) Mark III Collab.) (JADE Collab.) (TASSO Collab.) (TASSO Collab.) (TASSO Collab.) (HRS Collab.) (DELCO Collab.) stal Ball Collab.) (ENC Collab.) stal Ball Collab.)
BALTRUSAIT BALTRUSAIT BARTEL ADAMOVICH ALTHOFF DERRICK KOOP PARTRIDGE AGUILAR AUBERT PARTRIDGE SCHINDI FR	85 85B 85E 85J 84 84G 84J 84 84 84 84 83B 83 83 81 81	ZPHY C27 39 PRL 54 1976 PRL 55 150 PL 163B 277 PL 140B 119 ZPHY C22 219 PL 146B 443 PRL 53 1971 PRL 52 970 Thesis CALT-68-1 PL 123B 98 NP B213 31 PRL 47 760 PR D24 78	+Alston-Garnjost, Badtke, Bakken+ Baltrusaitis, Becker, Blaylock, Brown+ (Baltrusaitis, Becker, Blaylock, Brown+ (+Becker, Cords, Felst+ +Alexandrov, Bolta, Bravo+ (CERI +Braunschweig, Kirschfink+ +Branschweig, Kirschfink+ +Fernandez, Fries, Hyman+ +Sakuda, Atwood, Baillon+ .150 (Cry Aguilar-Benitez, Allison+ (LE +Bassompierre, Becks, Best+ +Peck, Porter, Gu+ (Cry +Alam Boyarski Breidenbach+	(TPC Collab.) Mark III Collab.) (JADE Collab.) (JADE Collab.) (TASSO Collab.) (TASSO Collab.) (TASSO Collab.) (TASSO Collab.) (HRS Collab.) (DELCO Collab.) (Stal Ball Collab.) (EMC Collab.) stal Ball Collab.) (Mark III Collab.)
BALTRUSAIT BALTRUSAIT BARTEL ADAMOVICH ALTHOFF DERRICK KOOP PARTRIDGE AGUILAR AUBERT PARTRIDGE SCHINDLER TRILUE	85 85B 85E 85J 84 84G 84J 84 84 84 83B 83 81 81	ZPHY C27 39 PRL 54 1976 PRL 55 150 PL 163B 277 PL 140B 119 ZPHY C22 219 PL 146B 443 PRL 53 1971 PRL 52 970 Thesis CALT-68-1 PL 123B 98 NP B213 31 PRL 47 760 PR D24 78 DPDL 75 57	+Alston-Garnjost, Badtke, Bakken+ Baltrusaitis, Becker, Blaylock, Brown+ (Baltrusaitis, Becker, Blaylock, Brown+ (+Becker, Cords, Felst+ +Alexandrov, Bolta, Bravo+ (CERI +Braunschweig, Kirschfink+ +Branschweig, Kirschfink+ +Fernandez, Fries, Hyman+ +Sakuda, Atwood, Baillon+ .150 (Cry Aguilar-Benitez, Allison+ (LE +Bassompierre, Becks, Best+ +Peck, Porter, Gu+ +Alam, Boyarski, Breidenbach+	(TPC Collab.) Mark III Collab.) (JADE Collab.) (JADE Collab.) (TASSO Collab.) (TASSO Collab.) (TASSO Collab.) (TASSO Collab.) (HRS Collab.) (DELCO Collab.) (DELCO Collab.) (EMC Collab.) (EMC Collab.) (Mark II Collab.)
BALTRUSAIT BALTRUSAIT BARTEL ADAMOVICH ALTHOFF DERRICK KOOP PARTRIDGE AGUILAR AUBERT PARTRIDGE SCHINDLER TRILLING DACIUO	85 85B 85E 85J 84 84G 84J 84 84 84 84 83 83 81 81 81	ZPHY C27 39 PRL 54 1976 PRL 55 150 PL 163B 277 PL 140B 119 ZPHY C22 219 PL 146B 443 PRL 53 1971 PRL 52 970 Thesis CALT-68-1 PL 123B 98 NP B213 31 PRL 47 760 PR D24 78 PRPL 75 57	+Alston-Garnjost, Badtke, Bakken+ Baltrusaitis, Becker, Blaylock, Brown+ (Baltrusaitis, Becker, Blaylock, Brown+ (+Becker, Cords, Felst+ +Alexandrov, Bolta, Bravo+ (CERI +Braunschweig, Kirschfink+ +Branschweig, Kirschfink+ +Fernandez, Fries, Hyman+ +Sakuda, Atwood, Baillon+ (Cry Aguilar-Benitez, Allison+ +Bassompierre, Becks, Best+ +Peck, Porter, Gu+ (Cry +Alam, Boyarski, Breidenbach+	(TPC Collab.) Mark III Collab.) Mark III Collab.) (JADE Collab.) N WA58 Collab.) (TASSO Collab.) (TASSO Collab.) (TASSO Collab.) (DELCO Collab.) stal Ball Collab.) (EMC Collab.) stal Ball Collab.) (Mark II Collab.)
BALTRUSAIT BALTRUSAIT BARTEL ADAMOVICH ALTHOFF ALTHOFF DERRICK KOOP PARTRIDGE AGUILAR AUBERT PARTRIDGE SCHINDLER TRILLING BACINO	85 85B 85E 85J 84 84G 84J 84 84 84 84 83B 83 81 81 81 80	ZPHY C27 39 PRL 54 1976 PRL 55 150 PL 163B 277 PL 140B 119 ZPHY C22 219 PL 146B 443 PRL 53 1971 PRL 52 970 Thesis CALT-68-1 PL 123B 98 NP B213 31 PRL 47 760 PR D24 78 PRPL 75 57 PRL 45 329	+Alston-Garnjost, Badtke, Bakken+ Baltrusaitis, Becker, Blaylock, Brown+ (Baltrusaitis, Becker, Blaylock, Brown+ (+Becker, Cords, Felst+ +Alexandrov, Bolta, Bravo+ (CERI +Braunschweig, Kirschfink+ +Branschweig, Kirschfink+ +Fernandez, Fries, Hyman+ +Sakuda, Atwood, Baillon+ (Cry Aguilar-Benitez, Allison+ (LE +Bassompierre, Becks, Best+ +Peck, Porter, Gu+ (Cry +Alam, Boyarski, Breidenbach+ +Ferguson+	(TPC Collab.) Mark III Collab.) (JADE Collab.) N WA58 Collab.) (TASSO Collab.) (TASSO Collab.) (TASSO Collab.) (TASSO Collab.) (DELCO Collab.) (DELCO Collab.) (EMC Collab.) (Mark II Collab.) (LBL, UCB) (DELCO Collab.)
BALTRUSAIT BALTRUSAIT BARTEL ADAMOVICH ALTHOFF DERRICK KOOP PARTRIDGE AGUILAR AUBERT PARTRIDGE SCHINDLER TRILLING BACINO SCHINDLER	85 85B 85E 85J 84G 84J 84 84 84 84 83 83 81 81 81 80 80	ZPHY C27 39 PRL 54 1976 PRL 55 150 PL 163B 277 PL 140B 119 ZPHY C22 219 PL 146B 443 PRL 53 1971 PRL 52 970 Thesis CALT-68-1 PL 123B 98 NP B213 31 PRL 47 760 PR D24 78 PRPL 75 57 PRL 45 329 PR D21 2716	+Alston-Garnjost, Badtke, Bakken+ Baltrusaitis, Becker, Blaylock, Brown+ (Baltrusaitis, Becker, Blaylock, Brown+ (+Becker, Cords, Felst+ +Alexandrov, Bolta, Bravo+ (CERI +Braunschweig, Kirschfink+ +Branschweig, Kirschfink+ +Fernandez, Fries, Hyman+ +Sakuda, Atwood, Baillon+ (Cry Aguilar-Benitez, Allison+ (LE +Bassompierre, Becks, Best+ +Peck, Porter, Gu+ (Cry +Alam, Boyarski, Breidenbach+ +Ferguson+ +Siegrist, Alam, Boyarski+	(TPC Collab.) Mark III Collab.) (JADE Collab.) (JADE Collab.) (TASSO Collab.) (TASSO Collab.) (TASSO Collab.) (TASSO Collab.) (DELCO Collab.) (BC-EHS Collab.) (EMC Collab.) (Mark II Collab.) (DELCO Collab.) (DELCO Collab.) (Mark II Collab.)
BALTRUSAIT BALTRUSAIT BARTEL ADAMOVICH ALTHOFF DERRICK KOOP PARTRIDGE AGUILAR AUBERT PARTRIDGE SCHINDLER TRILLING BACINO SCHINDLER ZHOLENTZ	85 85B 85E 85J 84 84G 84J 84 84 84 83B 83 81 81 81 80 80 80	ZPHY C27 39 PRL 54 1976 PRL 55 150 PL 163B 277 PL 140B 119 ZPHY C22 219 PL 146B 443 PRL 53 1971 PRL 52 970 Thesis CALT-68-1 PL 123B 98 NP B213 31 PRL 47 760 PR D24 78 PRPL 75 57 PRL 45 329 PR D21 2716 PL 96B 214	+Alston-Garnjost, Badtke, Bakken+ Baltrusaitis, Becker, Blaylock, Brown+ (Baltrusaitis, Becker, Blaylock, Brown+ (+Becker, Cords, Felst+ +Alexandrov, Bolta, Bravo+ (CERI +Braunschweig, Kirschfink+ +Branschweig, Kirschfink+ +Fernandez, Fries, Hyman+ +Sakuda, Atwood, Baillon+ (Cry Aguilar-Benitez, Allison+ (LE +Bassompierre, Becks, Best+ +Peck, Porter, Gu+ (Cry +Alam, Boyarski, Breidenbach+ +Ferguson+ +Siegrist, Alam, Boyarski+ +Kurdadze, Lelchuk, Mishnev+	(TPC Collab.) Mark III Collab.) Mark III Collab.) (JADE Collab.) N WA58 Collab.) (TASSO Collab.) (TASSO Collab.) (TASSO Collab.) (DELCO Collab.) stal Ball Collab.) (EMC Collab.) (EMC Collab.) (Mark II Collab.) (DELCO Collab.) (DELCO Collab.) (DELCO Collab.) (Mark II Collab.) (Mark II Collab.) (Mark II Collab.) (Mark II Collab.) (MOVO)
BALTRUSAIT BALTRUSAIT BARTEL ADAMOVICH ALTHOFF ALTHOFF DERRICK KOOP PARTRIDGE AGUILAR AUBERT PARTRIDGE SCHINDLER TRILLING BACINO SCHINDLER ZHOLENTZ AISO	85 85B 85E 85J 84G 84J 84 84 84 84 83B 83 81 81 81 80 80 80 81	ZPHY C27 39 PRL 54 1976 PRL 55 150 PL 163B 277 PL 140B 119 ZPHY C22 219 PL 146B 443 PRL 53 1971 PRL 52 970 Thesis CALT-68-1 PL 123B 98 NP B213 31 PRL 47 760 PR D24 78 PRPL 75 57 PRL 45 329 PR D21 2716 PL 96B 214 SINP 34 814	 +Alston-Garnjost, Badtke, Bakken+ Baltrusaitis, Becker, Blaylock, Brown+ (Baltrusaitis, Becker, Blaylock, Brown+ (+Becker, Cords, Felst+ +Alexandrov, Bolta, Bravo+ (CERI +Braunschweig, Kirschfink+ +Branschweig, Kirschfink+ +Branschweig, Kirschfink+ +Fernandez, Fries, Hyman+ +Sakuda, Atwood, Baillon+ (Cry Aguilar-Benitez, Allison+ (LE +Bassompierre, Becks, Best+ +Peck, Porter, Gu+ (Cry +Alam, Boyarski, Breidenbach+ +Ferguson+ +Siegrist, Alam, Boyarski+ +Kurdadze, Lelchuk, Mishnev+ Zholentz, Kurdadze, Lelchuk+ 	(TPC Collab.) Mark III Collab.) Mark III Collab.) (JADE Collab.) (JADE Collab.) (TASSO Collab.) (TASSO Collab.) (TASSO Collab.) (HRS Collab.) (DELCO Collab.) (EMC Collab.) (EMC Collab.) (Mark II Collab.) (DELCO Collab.) (LBL, UCB) (DELCO Collab.) (Mark II Collab.) (Mark II Collab.) (Mark II Collab.) (MOVO)
BALTRUSAIT BALTRUSAIT BARTEL ADAMOVICH ALTHOFF DERRICK KOOP PARTRIDGE AGUILAR AUBERT PARTRIDGE SCHINDLER TRILLING BACINO SCHINDLER ZHOLENTZ Also	85 85B 85E 85J 84G 84J 84 84 84 84 83B 83 81 81 80 80 80 81	ZPHY C27 39 PRL 54 1976 PRL 55 150 PL 163B 277 PL 140B 119 ZPHY C22 219 PL 146B 443 PRL 53 1971 PRL 52 970 Thesis CALT-68-1 PL 123B 98 NP B213 31 PRL 47 760 PR D24 78 PRPL 75 57 PRL 45 329 PR D21 2716 PL 96B 214 SJNP 34 814 Translated for a 2	 +Alston-Garnjost, Badtke, Bakken+ Baltrusaitis, Becker, Blaylock, Brown+ (Baltrusaitis, Becker, Blaylock, Brown+ (+Becker, Cords, Felst+ +Alexandrov, Bolta, Bravo+ (CERI +Braunschweig, Kirschfink+ +Branschweig, Kirschfink+ +Fernandez, Fries, Hyman+ +Sakuda, Atwood, Baillon+ (Cry Aguilar-Benitez, Allison+ (LE +Bassompierre, Becks, Best+ +Peck, Porter, Gu+ (Cry +Alam, Boyarski, Breidenbach+ +Ferguson+ +Siegrist, Alam, Boyarski+ +Kurdadze, Lelchuk, Mishnev+ Zholentz, Kurdadze, Lelchuk+ 	(TPC Collab.) Mark III Collab.) (JADE Collab.) N WA58 Collab.) (TASSO Collab.) (TASSO Collab.) (TASSO Collab.) (TASSO Collab.) (DELCO Collab.) (BC-EHS Collab.) (EMC Collab.) (Mark II Collab.) (LBL, UCB) (DELCO Collab.) (Mark II Collab.) (Mark II Collab.) (Mark II Collab.) (MOVO) (NOVO)
BALTRUSAIT BALTRUSAIT BARTEL ADAMOVICH ALTHOFF DERRICK KOOP PARTRIDGE AGUILAR AUBERT PARTRIDGE SCHINDLER TRILLING BACINO SCHINDLER ZHOLENTZ Also	85 85B 85E 85J 84 84G 84J 84 84 84 83 81 81 80 80 80 81 70	ZPHY C27 39 PRL 54 1976 PRL 55 150 PL 163B 277 PL 140B 119 ZPHY C22 219 PL 146B 443 PRL 53 1971 PRL 52 970 Thesis CALT-68-1 PL 123B 98 NP B213 31 PRL 47 760 PR D24 78 PRPL 75 57 PRL 45 329 PR D21 2716 PL 96B 214 SJNP 34 814 Translated from Y	 +Alston-Garnjost, Badtke, Bakken+ Baltrusaitis, Becker, Blaylock, Brown+ (Baltrusaitis, Becker, Blaylock, Brown+ (+Becker, Cords, Felst+ +Alexandrov, Bolta, Bravo+ (CERI +Braunschweig, Kirschfink+ +Branschweig, Kirschfink+ +Branschweig, Kirschfink+ +Fernandez, Fries, Hyman+ +Sakuda, Atwood, Baillon+ (150 Aguilar-Benitez, Allison+ (LE +Bassompierre, Becks, Best+ +Peck, Porter, Gu+ (Cry +Alam, Boyarski, Breidenbach+ +Ferguson+ +Siegrist, Alam, Boyarski+ +Kurdadze, Lelchuk, Mishnev+ Zholentz, Kurdadze, Lelchuk+ 	(TPC Collab.) Mark III Collab.) (JADE Collab.) (JADE Collab.) (TASSO Collab.) (TASSO Collab.) (TASSO Collab.) (TASSO Collab.) (TASSO Collab.) (DELCO Collab.) (BC-EHS Collab.) (EMC Collab.) (Mark II Collab.) (Mark II Collab.) (DELCO Collab.) (Mark II Collab.) (Mark II Collab.) (Mark II Collab.) (Mark II Collab.) (Mark II Collab.) (MoVO) (NOVO)
BALTRUSAIT BALTRUSAIT BARTEL ADAMOVICH ALTHOFF ALTHOFF DERRICK KOOP PARTRIDGE AGUILAR AUBERT PARTRIDGE SCHINDLER TRILLING BACINO SCHINDLER ZHOLENTZ Also BACINO	85 85B 85E 85J 84 84G 84J 84 84 84 83B 83 81 81 81 80 80 80 81 792	ZPHY C27 39 PRL 54 1976 PRL 55 150 PL 163B 277 PL 140B 119 ZPHY C22 219 PL 146B 443 PRL 53 1971 PRL 52 970 Thesis CALT-68-1 PL 123B 98 NP B213 31 PRL 47 760 PR D24 78 PRPL 75 57 PRL 45 329 PR D21 2716 PL 96B 214 SJNP 34 814 Translated from Y PRL 43 1073	+Alston-Garnjost, Badtke, Bakken+ Baltrusaitis, Becker, Blaylock, Brown+ (Baltrusaitis, Becker, Blaylock, Brown+ (+Becker, Cords, Felst+ +Alexandrov, Bolta, Bravo+ (CERI +Braunschweig, Kirschfink+ +Branschweig, Kirschfink+ +Fernandez, Fries, Hyman+ +Sakuda, Atwood, Baillon+ (Cry Aguilar-Benitez, Allison+ (LE +Bassompierre, Becks, Best+ +Peck, Porter, Gu+ (Cry +Alam, Boyarski, Breidenbach+ +Ferguson+ +Siegrist, Alam, Boyarski+ +Kurdadze, Lelchuk, Mishnev+ Zholentz, Kurdadze, Lelchuk+ (AF 34 1471. +Ferguson, Nodulman+	(TPC Collab.) Mark III Collab.) Mark III Collab.) (JADE Collab.) N WA58 Collab.) (TASSO Collab.) (TASSO Collab.) (TASSO Collab.) (DELCO Collab.) (DELCO Collab.) (EMC Collab.) (LBL, UCB) (DELCO Collab.) (Mark II Collab.) (DELCO Collab.) (Mark II Collab.) (Mark II Collab.) (Mark II Collab.) (Mark II Collab.) (Mark II Collab.) (MOVO) (NOVO) (DELCO Collab.)
BALTRUSAIT BALTRUSAIT BARTEL ADAMOVICH ALTHOFF DERRICK KOOP PARTRIDGE AGUILAR AUBERT PARTRIDGE SCHINDLER TRILLING BACINO SCHINDLER ZHOLENTZ Also BACINO BRANDELIK	85 85B 85E 85J 84 84G 84J 84 84 84 83 84 83 81 81 81 81 80 80 80 81 79 79	ZPHY C27 39 PRL 54 1976 PRL 55 150 PL 163B 277 PL 140B 119 ZPHY C22 219 PL 146B 443 PRL 53 1971 PRL 52 970 Thesis CALT-68-1 PL 123B 98 NP B213 31 PRL 47 760 PR D24 78 PRPL 75 57 PRL 45 329 PR D21 2716 PL 96B 214 SJNP 34 814 Translated from Y PRL 43 1073 PL 80B 412	 +Alston-Garnjost, Badtke, Bakken+ Baltrusaitis, Becker, Blaylock, Brown+ (Baltrusaitis, Becker, Blaylock, Brown+ (+Becker, Cords, Felst+ +Alexandrov, Bolta, Bravo+ (CERI +Braunschweig, Kirschfink+ +Branschweig, Kirschfink+ +Branschweig, Kirschfink+ +Fernandez, Fries, Hyman+ +Sakuda, Atwood, Baillon+ (Cry Aguilar-Benitez, Allison+ (LE +Bassompierre, Becks, Best+ +Peck, Porter, Gu+ (Cry +Alam, Boyarski, Breidenbach+ +Ferguson+ +Siegrist, Alam, Boyarski+ +Kurdadze, Lelchuk, Mishnev+ Zholentz, Kurdadze, Lelchuk+ (Af 34 1471. +Ferguson, Nodulman+ +Braunschweig, Martyn, Sander+ 	(TPC Collab.) Mark III Collab.) Mark III Collab.) (JADE Collab.) N WA58 Collab.) (TASSO Collab.) (TASSO Collab.) (TASSO Collab.) (DELCO Collab.) (BECC Collab.) (EMC Collab.) (EMC Collab.) (Mark II Collab.) (DELCO Collab.) (Mark II Collab.) (Mark II Collab.) (MOVO) (NOVO) (DELCO Collab.) (DASP Collab.)
BALTRUSAIT BALTRUSAIT BARTEL ADAMOVICH ALTHOFF DERRICK KOOP PARTRIDGE AGUILAR AUBERT PARTRIDGE SCHINDLER TRILLING BACINO SCHINDLER ZHOLENTZ Also BACINO BRANDELIK FELLER	85 85B 85J 84 84G 84J 84 84 84 84 84 83 81 81 81 81 81 80 80 81 79 79 78	ZPHY C27 39 PRL 54 1976 PRL 55 150 PL 163B 277 PL 140B 119 ZPHY C22 219 PL 146B 443 PRL 53 1971 PRL 52 970 Thesis CALT-68-1 PL 123B 98 NP B213 31 PRL 47 760 PR D24 78 PRPL 75 57 PRL 45 329 PR D21 2716 PL 96B 214 SJNP 34 814 Translated from Y PRL 43 1073 PL 80B 412 PRL 40 274	 +Alston-Garnjost, Badtke, Bakken+ Baltrusaitis, Becker, Blaylock, Brown+ (Baltrusaitis, Becker, Blaylock, Brown+ (+Becker, Cords, Felst+ +Alexandrov, Bolta, Bravo+ (CERI +Braunschweig, Kirschfink+ +Branschweig, Kirschfink+ +Fernandez, Fries, Hyman+ +Sakuda, Atwood, Baillon+ (Cry Aguilar-Benitez, Allison+ (LE +Bassompierre, Becks, Best+ +Peck, Porter, Gu+ (Cry +Alam, Boyarski, Breidenbach+ +Ferguson+ +Siegrist, Alam, Boyarski+ +Kurdadze, Lelchuk, Mishnev+ Zholentz, Kurdadze, Lelchuk+ (AF 34 1471. +Ferguson, Nodulman+ +Braunschweig, Martyn, Sander+ +Litke, Madaras, Ronan+ 	(TPC Collab.) Mark III Collab.) (JADE Collab.) (JADE Collab.) (JADE Collab.) (TASSO Collab.) (TASSO Collab.) (TASSO Collab.) (TASSO Collab.) (DELCO Collab.) (BC-EHS Collab.) (EMC Collab.) (Mark II Collab.) (DELCO Collab.) (Mark II Collab.) (Mark II Collab.) (NOVO) (NOVO) (DELCO Collab.) (DASP Collab.) (Mark I Collab.)
BALTRUSAIT BALTRUSAIT BARTEL ADAMOVICH ALTHOFF DERRICK KOOP PARTRIDGE AGUILAR AUBERT PARTRIDGE SCHINDLER TRILLING BACINO SCHINDLER ZHOLENTZ Also BACINO BRANDELIK FELLER VUILLEMIN	85 85B 85E 85J 84 84G 84J 84 84 84 83 81 81 81 80 80 80 81 79 79 78 78	ZPHY C27 39 PRL 54 1976 PRL 55 150 PL 163B 277 PL 140B 119 ZPHY C22 219 PL 146B 443 PRL 53 1971 PRL 52 970 Thesis CALT-68-1 PL 123B 98 NP B213 31 PRL 47 760 PR D24 78 PRPL 75 57 PRL 45 329 PR D21 2716 PL 96B 214 SJNP 34 814 Translated from Y PRL 43 1073 PL 80B 412 PRL 40 274 PRL 41 1149	+Alston-Garnjost, Badtke, Bakken+ Baltrusaitis, Becker, Blaylock, Brown+ (Baltrusaitis, Becker, Blaylock, Brown+ (+Becker, Cords, Felst+ +Alexandrov, Bolta, Bravo+ (CERI +Braunschweig, Kirschfink+ +Branschweig, Kirschfink+ +Fernandez, Fries, Hyman+ +Sakuda, Atwood, Baillon+ (Cry Aguilar-Benitez, Allison+ (LE +Bassompierre, Becks, Best+ +Peck, Porter, Gu+ (Cry +Alam, Boyarski, Breidenbach+ +Ferguson+ +Siegrist, Alam, Boyarski+ +Kurdadze, Lelchuk, Mishnev+ Zholentz, Kurdadze, Lelchuk+ (AF 34 1471. +Ferguson, Nodulman+ +Braunschweig, Martyn, Sander+ +Litke, Madaras, Ronan+ +Feldman. Feller+	(TPC Collab.) Mark III Collab.) Mark III Collab.) (JADE Collab.) N WA58 Collab.) (TASSO Collab.) (TASSO Collab.) (TASSO Collab.) (TASSO Collab.) (DELCO Collab.) (EMC Collab.) (EMC Collab.) (LBL, UCB). (Mark II Collab.) (Mark II Collab.) (NOVO) (DELCO Collab.) (MARK I Collab.) (DASP Collab.) (Mark I Collab.) (Mark I Collab.) (Mark I Collab.)
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