Reference = AAIJ 17D; PL B764 233
Verifier code = LHCB

Normally we send all verifications for one experiment to one person, usually the spokesperson or data-analysis co-ordinator, who then distributes them to the appropriate people. Please tell us if we should send the verifications for your experiment to someone else.

PLEASE READ NOW

PLEASE REPLY WITHIN ONE WEEK

Vincenzo Vagnoni

EMAIL: vincenzo.vagnoni@bo.infn.it

March 20, 2017

Dear Colleague,

(1) Please check the results of your experiment carefully. They are marked.

(2) Please reply within one week.

(3) Please reply even if everything is correct.

(4) IMPORTANT!! Please tell WHICH papers you are verifying. We have lots of requests out.

(5) Feel free to make comments on our treatment of any of the results (not just yours) you see.

Thank you for helping us make the Review accurate and useful.

Sincerely,

Simon Eidelman
BINP, Budker Inst. of Nuclear Physics
Prospekt Lavrent'eva 11
RU-630090 Novosibirsk
Russian Federation

EMAIL: simon.eidelman@cern.ch

LIGHT UNFLAVORED MESONS ($S = C = B = 0$)

NODE=MXXX005

For $I = 1$ (π, b, ρ, a): $u\overline{d}$, $(u\overline{u}-d\overline{d})/\sqrt{2}$, $d\overline{u}$;
for $I = 0$ (η, η', h, h', ω, ϕ, f, f'): $c_1(u\overline{u} + d\overline{d}) + c_2(s\overline{s})$

NODE=MXXX005

$\eta'(958)$

NODE=M002

$I^G(J^{PC}) = 0^+(0^{-+})$

$\eta'(958)$ BRANCHING RATIOS

NODE=M002230

$\Gamma(\pi^+\pi^-)/\Gamma_{total}$ **Γ_{28}/Γ**

NODE=M002R20
NODE=M002R20

	VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
YOUR DATA	**< 0.18**	90	[1] AAIJ	17D	LHCB	$D^+_{(s)} \to \pi^+\pi^-\pi^+$
	• • • We do not use the following data for averages, fits, limits, etc. • • •					
	< 0.6	90	[2] ABLIKIM	11G	BES3	$J/\psi \to \gamma\pi^+\pi^-$
	< 29	90	[3] MORI	07A	BELL	$\gamma\gamma \to \pi^+\pi^-$
	< 3.3	90	[4] MORI	07A	BELL	$\gamma\gamma \to \pi^+\pi^-$
	<800	95	DANBURG	73	HBC	2.2 $K^- p \to \Lambda X^0$
	<200	90	RITTENBERG	69	HBC	1.7–2.7 $K^- p$

OCCUR=2

[1] Using branching fractions of $D^+_{(s)}$ decays from PDG 15.

YOUR NOTE

NODE=M002R20;LINKAGE=A

[2] ABLIKIM 11G reports $[\Gamma(\eta'(958) \to \pi^+\pi^-)/\Gamma_{total}] \times [B(J/\psi(1S) \to \gamma\eta'(958))] < 2.84\times10^{-7}$ which we divide by our best value $B(J/\psi(1S) \to \gamma\eta'(958)) = 5.13\times10^{-3}$.

NODE=M002R20;LINKAGE=AL

[3] Taking into account interference with the $\gamma\gamma \to \pi^+\pi^-$ continuum.

NODE=M002R20;LINKAGE=MO

[4] Without interference with the $\gamma\gamma \to \pi^+\pi^-$ continuum.

NODE=M002R20;LINKAGE=MR

$\eta'(958)$ REFERENCES

NODE=M002

YOUR PAPER

AAIJ	17D	PL B764 233	R. Aaij *et al.*	(LHCb Collab.)	REFID=57702
PDG	15	RPP 2015 at pdg.lbl.gov		(PDG Collab.)	REFID=56977;ERROR=10
ABLIKIM	11G	PR D84 032006	M. Ablikim *et al.*	(BES III Collab.)	REFID=53711
MORI	07A	JPSJ 76 074102	T. Mori *et al.*	(BELLE Collab.)	REFID=51691
DANBURG	73	PR D8 3744	J.S. Danburg *et al.*	(BNL, MICH) JP	REFID=20280
RITTENBERG	69	Thesis UCRL 18863	A. Rittenberg	(LRL) I	REFID=20266

Reference = AAIJ 16N; PR D93 052018
Verifier code = LHCB

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LIGHT UNFLAVORED MESONS ($S = C = B = 0$)

NODE=MXXX005

For $I = 1$ (π, b, ρ, a): $u\overline{d}$, $(u\overline{u}-d\overline{d})/\sqrt{2}$, $d\overline{u}$;
for $I = 0$ (η, η', h, h', ω, ϕ, f, f'): $c_1(u\overline{u} + d\overline{d}) + c_2(s\overline{s})$

NODE=MXXX005

NODE=M036

$a_0(980)$

$I^G(J^{PC}) = 1^-(0^{++})$

See our minireview on scalar mesons under $f_0(500)$. (See the index for the page number.)

NODE=M036

$a_0(980)$ MASS

NODE=M036205

$K\overline{K}$ ONLY

NODE=M036M2

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
YOUR DATA **925 ± 5 ±8**	190k	[1] AAIJ	16N	LHCB		$D^0 \to K^0_S K^\pm \pi^\mp$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
~ 1053		[2] OLLER	99C	RVUE		$\pi\pi \to \pi\pi$, $K\overline{K}$
982 ± 3		[3] ABELE	98	CBAR		0.0 $\overline{p}p \to K^0_L K^\pm \pi^\mp$
975 ±15		BERTIN	98B	OBLX	±	0.0 $\overline{p}p \to K^\pm K_s \pi^\mp$
976 ± 6	316	DEBILLY	80	HBC	±	1.2–2 $\overline{p}p \to f_1(1285)\omega$
1016 ±10	100	[4] ASTIER	67	HBC	±	0.0 $\overline{p}p$
1003.3± 7.0	143	[5] ROSENFELD	65	RVUE	±	

NODE=M036M2

YOUR NOTE
[1] Using a two-channel resonance parametrization with couplings fixed to ABELE 98. NODE=M036M2;LINKAGE=B
[2] T-matrix pole. NODE=M036M2;LINKAGE=AN
[3] T-matrix pole on sheet II, the pole on sheet III is at 1006-i49 MeV. NODE=M036M2;LINKAGE=Q
[4] ASTIER 67 includes data of BARLOW 67, CONFORTO 67, ARMENTEROS 65. NODE=M036M2;LINKAGE=A
[5] Plus systematic errors. NODE=M036M2;LINKAGE=S

$a_0(980)$ REFERENCES

NODE=M036

YOUR PAPER AAIJ	16N	PR D93 052018	R. Aaij *et al.*	(LHCb Collab.)	REFID=57273
OLLER	99C	PR D60 074023	J.A. Oller, E. Oset		REFID=47386
ABELE	98	PR D57 3860	A. Abele *et al.*	(Crystal Barrel Collab.)	REFID=45863
BERTIN	98B	PL B434 180	A. Bertin *et al.*	(OBELIX Collab.)	REFID=46351
DEBILLY	80	NP B176 1	L. de Billy *et al.*	(CURIN, LAUS, NEUC+)	REFID=20461
ASTIER	67	PL 25B 294	A. Astier *et al.*	(CDEF, CERN, IRAD)	REFID=20405
Includes data of BARLOW 67, CONFORTO 67, and ARMENTEROS 65.					
BARLOW	67	NC 50A 701	J. Barlow *et al.*	(CERN, CDEF, IRAD, LIVP)	REFID=20041
CONFORTO	67	NP B3 469	G. Conforto *et al.*	(CERN, CDEF, IPNP+)	REFID=20411
ARMENTEROS	65	PL 17 344	R. Armenteros *et al.*	(CERN, CDEF)	REFID=20396
ROSENFELD	65	Oxford Conf. 58	A.H. Rosenfeld	(LRL)	REFID=20399

NODE=M149

$a_0(1450)$

$I^G(J^{PC}) = 1^-(0^{++})$

See minireview on scalar mesons under $f_0(500)$.

NODE=M149

$a_0(1450)$ MASS

NODE=M149M

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
1467 ±14 OUR AVERAGE					
YOUR DATA 1458 ±14 ±15	190k	AAIJ	16N	LHCB	$D^0 \to K^0_S K^\pm \pi^\mp$
1480 ±30		ABELE	98	CBAR	0.0 $\overline{p}p \to K^0_L K^\pm \pi^\mp$
1470 ±25		[1] AMSLER	95D	CBAR	0.0 $\overline{p}p \to \pi^0\pi^0\pi^0$, $\pi^0\eta\eta$, $\pi^0\pi^0\eta$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1515 ±30		[2] ANISOVICH	09	RVUE	0.0 $\overline{p}p$, πN
$1316.8^{+\ 0.7}_{-\ 1.0}{}^{+24.7}_{-\ 4.6}$		[3] UEHARA	09A	BELL	$\gamma\gamma \to \pi^0\eta$
1432 ±13 ±25		[4] BUGG	08A	RVUE	$\overline{p}p$
1477 ±10	80k	[5] UMAN	06	E835	5.2 $\overline{p}p \to \eta\eta\pi^0$
$1441\ ^{+40}_{-15}$	35280	[2] BAKER	03	SPEC	$\overline{p}p \to \omega\pi^+\pi^-\pi^0$
1303 ±16		[6] BARGIOTTI	03	OBLX	$\overline{p}p$

1296	±10	[7] AMSLER	02	CBAR	0.9 $\bar{p}p \rightarrow \pi^0\pi^0\eta$	
1565	±30	[7] ANISOVICH	98B	RVUE	Compilation	
1290	±10	[8] BERTIN	98B	OBLX	0.0 $\bar{p}p \rightarrow K^{\pm}K_s\pi^{\mp}$	
1450	±40	AMSLER	94D	CBAR	0.0 $\bar{p}p \rightarrow \pi^0\pi^0\eta$	
1410	±25	ETKIN	82C	MPS	23 $\pi^- p \rightarrow n2K^0_S$	
~ 1300		MARTIN	78	SPEC	10 $K^{\pm}p \rightarrow K^0_S\pi p$	
1255	± 5	[9] CASON	76			

[1] Coupled-channel analysis of AMSLER 95B, AMSLER 95C, and AMSLER 94D. NODE=M149M;LINKAGE=AB
[2] From the pole position. NODE=M149M;LINKAGE=PP
[3] May be a different state. NODE=M149M;LINKAGE=UE
[4] Using data from AMSLER 94D, ABELE 98, and BAKER 03. Supersedes BUGG 94. NODE=M149M;LINKAGE=BU
[5] Statistical error only. NODE=M149M;LINKAGE=ST
[6] Coupled channel analysis of $\pi^+\pi^-\pi^0$, $K^+K^-\pi^0$, and $K^{\pm}K^0_S\pi^{\mp}$. NODE=M149M;LINKAGE=BG
[7] T-matrix pole. NODE=M149M;LINKAGE=AN
[8] Not confirmed by BUGG 08A. NODE=M149M;LINKAGE=BE
[9] Isospin 0 not excluded. NODE=M149M;LINKAGE=CC

$a_0(1450)$ WIDTH

NODE=M149W

NODE=M149W

VALUE (MeV)			*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
271	**±11**	**OUR AVERAGE**					
YOUR DATA 282	±12	±13	190k	AAIJ	16N	LHCB	$D^0 \rightarrow K^0_S K^{\pm}\pi^{\mp}$
265	±15			ABELE	98	CBAR	0.0 $\bar{p}p \rightarrow K^0_L K^{\pm}\pi^{\mp}$
265	±30			[1] AMSLER	95D	CBAR	0.0 $\bar{p}p \rightarrow \pi^0\pi^0\pi^0$, $\pi^0\eta\eta$, $\pi^0\pi^0\eta$
• • • We do not use the following data for averages, fits, limits, etc. • • •							
230	±36			[2] ANISOVICH	09	RVUE	0.0 $\bar{p}p$, πN
65.0	$^{+\ 2.1+99.1}_{-\ 5.4-32.6}$			[3] UEHARA	09A	BELL	$\gamma\gamma \rightarrow \pi^0\eta$
196	±10	±10		[4] BUGG	08A	RVUE	$\bar{p}p$
267	±11		80k	[5] UMAN	06	E835	5.2 $\bar{p}p \rightarrow \eta\eta\pi^0$
110	±14		35280	[2] BAKER	03	SPEC	$\bar{p}p \rightarrow \omega\pi^+\pi^-\pi^0$
92	±16			[6] BARGIOTTI	03	OBLX	$\bar{p}p$
81	±21			[7] AMSLER	02	CBAR	0.9 $\bar{p}p \rightarrow \pi^0\pi^0\eta$
292	±40			[7] ANISOVICH	98B	RVUE	Compilation
80	± 5			[8] BERTIN	98B	OBLX	0.0 $\bar{p}p \rightarrow K^{\pm}K_s\pi^{\mp}$
270	±40			AMSLER	94D	CBAR	0.0 $\bar{p}p \rightarrow \pi^0\pi^0\eta$
230	±30			ETKIN	82C	MPS	23 $\pi^- p \rightarrow n2K^0_S$
~ 250				MARTIN	78	SPEC	10 $K^{\pm}p \rightarrow K^0_S\pi p$
79	±10			[9] CASON	76		

[1] Coupled-channel analysis of AMSLER 95B, AMSLER 95C, and AMSLER 94D. NODE=M149W;LINKAGE=AB
[2] From the pole position. NODE=M149W;LINKAGE=PP
[3] May be a different state. NODE=M149W;LINKAGE=UE
[4] Using data from AMSLER 94D, ABELE 98, and BAKER 03. Supersedes BUGG 94. NODE=M149W;LINKAGE=BU
[5] Statistical error only. NODE=M149W;LINKAGE=ST
[6] Coupled channel analysis of $\pi^+\pi^-\pi^0$, $K^+K^-\pi^0$, and $K^{\pm}K^0_S\pi^{\mp}$. NODE=M149W;LINKAGE=BG
[7] T-matrix pole. NODE=M149W;LINKAGE=AN
[8] Not confirmed by BUGG 08A. NODE=M149W;LINKAGE=BE
[9] Isospin 0 not excluded. NODE=M149W;LINKAGE=CC

$a_0(1450)$ REFERENCES

NODE=M149

YOUR PAPER AAIJ	16N	PR D93 052018	R. Aaij *et al.*	(LHCb Collab.)		REFID=57273
ANISOVICH	09	IJMP A24 2481	V.V. Anisovich, A.V. Sarantsev			REFID=52719
UEHARA	09A	PR D80 032001	S. Uehara *et al.*	(BELLE Collab.)		REFID=53002
BUGG	08A	PR D78 074023	D.V. Bugg	(LOQM)		REFID=52578
UMAN	06	PR D73 052009	I. Uman *et al.*	(FNAL E835)		REFID=51063
BAKER	03	PL B563 140	C.A. Baker *et al.*			REFID=49414
BARGIOTTI	03	EPJ C26 371	M. Bargiotti *et al.*	(OBELIX Collab.)		REFID=49217
AMSLER	02	EPJ C23 29	C. Amsler *et al.*			REFID=48580
ABELE	98	PR D57 3860	A. Abele *et al.*	(Crystal Barrel Collab.)		REFID=45863
ANISOVICH	98B	SPU 41 419	V.V. Anisovich *et al.*			REFID=46331
		Translated from UFN 168 481.				
BERTIN	98B	PL B434 180	A. Bertin *et al.*	(OBELIX Collab.)		REFID=46351
AMSLER	95B	PL B342 433	C. Amsler *et al.*	(Crystal Barrel Collab.)		REFID=44377
AMSLER	95C	PL B353 571	C. Amsler *et al.*	(Crystal Barrel Collab.)		REFID=44440
AMSLER	95D	PL B355 425	C. Amsler *et al.*	(Crystal Barrel Collab.)		REFID=44441
AMSLER	94D	PL B333 277	C. Amsler *et al.*	(Crystal Barrel Collab.)	IGJPC	REFID=44093
BUGG	94	PR D50 4412	D.V. Bugg *et al.*	(LOQM)		REFID=44078

ETKIN	82C	PR D25 2446	A. Etkin *et al.*	(BNL, CUNY, TUFTS, VAND)	REFID=20391
MARTIN	78	NP B134 392	A.D. Martin *et al.*	(DURH, GEVA)	REFID=22446
CASON	76	PRL 36 1485	N.M. Cason *et al.*	(NDAM, ANL)	REFID=21064

NODE=M105

$\rho(1450)$

$I^G(J^{PC}) = 1^+(1^{--})$

See our mini-review under the $\rho(1700)$.

NODE=M105

$\rho(1450)$ MASS

NODE=M105205

$K\overline{K}$ MODE

NODE=M105M7
NODE=M105M7

	VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
YOUR DATA	**1208 ±8 ±9**	190k	[1] AAIJ	16N	LHCB		$D^0 \to K^0_S K^\pm \pi^\mp$
	• • • We do not use the following data for averages, fits, limits, etc. • • •						
	1422.8±6.5	27k	[2] ABELE	99D	CBAR	±	0.0 $\overline{p}p \to K^+ K^- \pi^0$

YOUR NOTE

[1] Using the GOUNARIS 68 parameterization with fixed width.

NODE=M105M7;LINKAGE=A

[2] K-matrix pole. Isospin not determined, could be $\omega(1420)$.

NODE=M105M7;LINKAGE=AN

$\rho(1450)$ WIDTH

NODE=M105210

$K\overline{K}$ MODE

NODE=M105W7
NODE=M105W7

	VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
YOUR DATA	**410 ±19 ±35**	190k	[1] AAIJ	16N	LHCB		$D^0 \to K^0_S K^\pm \pi^\mp$
	• • • We do not use the following data for averages, fits, limits, etc. • • •						
	146.5±10.5	27k	[2] ABELE	99D	CBAR	±	0.0 $\overline{p}p \to K^+ K^- \pi^0$

YOUR NOTE

[1] Using the GOUNARIS 68 parameterization with fixed mass.

NODE=M105W7;LINKAGE=A

[2] K-matrix pole. Isospin not determined, could be $\omega(1420)$.

NODE=M105W7;LINKAGE=AN

$\rho(1450)$ REFERENCES

NODE=M105

YOUR PAPER AAIJ	16N	PR D93 052018	R. Aaij *et al.*	(LHCb Collab.)	REFID=57273
ABELE	99D	PL B468 178	A. Abele *et al.*	(Crystal Barrel Collab.)	REFID=47401
GOUNARIS	68	PRL 21 244	G.J. Gounaris, J.J. Sakurai		REFID=48054

NODE=M065

$\rho(1700)$

$I^G(J^{PC}) = 1^+(1^{--})$

$\rho(1700)$ MASS

NODE=M065205

$K\overline{K}$ MODE

NODE=M065M2
NODE=M065M2

	VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
YOUR DATA	1541 ±12 ±33	190k	[1] AAIJ	16N	LHCB		$D^0 \to K^0_S K^\pm \pi^\mp$
	• • • We do not use the following data for averages, fits, limits, etc. • • •						
	1740.8±22.2	27k	[2] ABELE	99D	CBAR	±	0.0 $\overline{p}p \to K^+ K^- \pi^0$
	1582 ±36	1600	CLELAND	82B	SPEC	±	50 $\pi p \to K^0_S K^\pm p$

YOUR NOTE

[1] Using the GOUNARIS 68 parameterization with a fixed width. Value is average using different $K\pi$ S-wave parametrizations in fit.

NODE=M065M2;LINKAGE=A

[2] K-matrix pole. Isospin not determined, could be $\omega(1650)$ or $\phi(1680)$.

NODE=M065M2;LINKAGE=AN

$\rho(1700)$ REFERENCES

NODE=M065

YOUR PAPER AAIJ	16N	PR D93 052018	R. Aaij *et al.*	(LHCb Collab.)	REFID=57273
ABELE	99D	PL B468 178	A. Abele *et al.*	(Crystal Barrel Collab.)	REFID=47401
CLELAND	82B	NP B208 228	W.E. Cleland *et al.*	(DURH, GEVA, LAUS+)	REFID=21281
GOUNARIS	68	PRL 21 244	G.J. Gounaris, J.J. Sakurai		REFID=48054

STRANGE MESONS
($S = \pm 1$, $C = B = 0$)

NODE=MXXX020

$K^+ = u\overline{s}$, $K^0 = d\overline{s}$, $\overline{K}^0 = \overline{d}s$, $K^- = \overline{u}s$, similarly for K^*'s

NODE=MXXX020

NODE=M018

$K^*(892)$

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

$K^*(892)$ MASS

NODE=M018205

CHARGED ONLY, HADROPRODUCED

NODE=M018M1

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	CHG	COMMENT	
891.76±0.25 OUR AVERAGE							NODE=M018M1
YOUR DATA 893.2 ±0.1 ±1.0	190k	[1] AAIJ	16N	LHCB		$D^0 \to K^0_S K^\pm \pi^\mp$	
892.6 ±0.5	5840	BAUBILLIER	84B	HBC	−	8.25 $K^- p \to \overline{K}^0 \pi^- p$	
888 ±3		NAPIER	84	SPEC	+	200 $\pi^- p \to 2K^0_S$ X	
891 ±1		NAPIER	84	SPEC	−	200 $\pi^- p \to 2K^0_S$ X	OCCUR=2
891.7 ±2.1	3700	BARTH	83	HBC	+	70 $K^+ p \to K^0 \pi^+$ X	
891 ±1	4100	TOAFF	81	HBC	−	6.5 $K^- p \to \overline{K}^0 \pi^- p$	
892.8 ±1.6		AJINENKO	80	HBC	+	32 $K^+ p \to K^0 \pi^+$ X	
890.7 ±0.9	1800	AGUILAR-...	78B	HBC	±	0.76 $\overline{p} p \to K^\mp K^0_S \pi^\pm$	
886.6 ±2.4	1225	BALAND	78	HBC	±	12 $\overline{p} p \to (K\pi)^\pm$ X	
891.7 ±0.6	6706	COOPER	78	HBC	±	0.76 $\overline{p} p \to (K\pi)^\pm$ X	
891.9 ±0.7	9000	[2] PALER	75	HBC	−	14.3 $K^- p \to (K\pi)^-$ X	
892.2 ±1.5	4404	AGUILAR-...	71B	HBC	−	3.9,4.6 $K^- p \to (K\pi)^- p$	
891 ±2	1000	CRENNELL	69D	DBC	−	3.9 $K^- N \to K^0 \pi^-$ X	
890 ±3.0	720	BARLOW	67	HBC	±	1.2 $\overline{p} p \to (K^0\pi)^\pm K^\mp$	
889 ±3.0	600	BARLOW	67	HBC	±	1.2 $\overline{p} p \to (K^0\pi)^\pm K\pi$	OCCUR=2
891 ±2.3	620	[3] DEBAERE	67B	HBC	+	3.5 $K^+ p \to K^0 \pi^+ p$	
891.0 ±1.2	1700	[4] WOJCICKI	64	HBC	−	1.7 $K^- p \to \overline{K}^0 \pi^- p$	
• • • We do not use the following data for averages, fits, limits, etc. • • •							
893.5 ±1.1	27k	[5] ABELE	99D	CBAR	±	0.0 $\overline{p} p \to K^+ K^- \pi^0$	
890.4 ±0.2 ±0.5	80k	[6] BIRD	89	LASS	−	11 $K^- p \to \overline{K}^0 \pi^- p$	
890.0 ±2.3	800	[3,4] CLELAND	82	SPEC	+	30 $K^+ p \to K^0_S \pi^+ p$	
896.0 ±1.1	3200	[3,4] CLELAND	82	SPEC	+	50 $K^+ p \to K^0_S \pi^+ p$	OCCUR=2
893 ±1	3600	[3,4] CLELAND	82	SPEC	−	50 $K^+ p \to K^0_S \pi^- p$	OCCUR=3
896.0 ±1.9	380	DELFOSSE	81	SPEC	+	50 $K^\pm p \to K^\pm \pi^0 p$	
886.0 ±2.3	187	DELFOSSE	81	SPEC	−	50 $K^\pm p \to K^\pm \pi^0 p$	OCCUR=2
894.2 ±2.0	765	[3] CLARK	73	HBC	−	3.13 $K^- p \to \overline{K}^0 \pi^- p$	
894.3 ±1.5	1150	[3,4] CLARK	73	HBC	−	3.3 $K^- p \to \overline{K}^0 \pi^- p$	OCCUR=2
892.0 ±2.6	341	[3] SCHWEING...68		HBC	−	5.5 $K^- p \to \overline{K}^0 \pi^- p$	OCCUR=2

YOUR NOTE

[1] Average of fit results with different parametrizations for the $K\pi$ S-wave. NODE=M018M1;LINKAGE=A

[2] Inclusive reaction. Complicated background and phase-space effects. NODE=M018M;LINKAGE=I

[3] Mass errors enlarged by us to $\Gamma/\sqrt{N}$. See note. NODE=M018M;LINKAGE=D

[4] Number of events in peak reevaluated by us. NODE=M018M;LINKAGE=W

[5] K-matrix pole. NODE=M018M1;LINKAGE=AN

[6] From a partial wave amplitude analysis. NODE=M018M1;LINKAGE=F

$K^*(892)$ WIDTH

NODE=M018215

CHARGED ONLY, HADROPRODUCED

NODE=M018W1

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	CHG	COMMENT	
50.3±0.8 OUR AVERAGE							NODE=M018W1
YOUR DATA 47.2±0.3±2.3	190k	[1] AAIJ	16N	LHCB		$D^0 \to K^0_S K^\pm \pi^\mp$	
49 ±2	5840	BAUBILLIER	84B	HBC	−	8.25 $K^- p \to \overline{K}^0 \pi^- p$	
56 ±4		NAPIER	84	SPEC	−	200 $\pi^- p \to 2K^0_S$ X	OCCUR=2
51 ±2	4100	TOAFF	81	HBC	−	6.5 $K^- p \to \overline{K}^0 \pi^- p$	
50.5±5.6		AJINENKO	80	HBC	+	32 $K^+ p \to K^0 \pi^+$ X	
45.8±3.6	1800	AGUILAR-...	78B	HBC	±	0.76 $\overline{p} p \to K^\mp K^0_S \pi^\pm$	
52.0±2.5	6706	[2] COOPER	78	HBC	±	0.76 $\overline{p} p \to (K\pi)^\pm$ X	
52.1±2.2	9000	[3] PALER	75	HBC	−	14.3 $K^- p \to (K\pi)^-$ X	
46.3±6.7	765	[2] CLARK	73	HBC	−	3.13 $K^- p \to \overline{K}^0 \pi^- p$	
48.2±5.7	1150	[2,4] CLARK	73	HBC	−	3.3 $K^- p \to \overline{K}^0 \pi^- p$	OCCUR=2
54.3±3.3	4404	[2] AGUILAR-...	71B	HBC	−	3.9,4.6 $K^- p \to (K\pi)^- p$	
46 ±5	1700	[2,4] WOJCICKI	64	HBC	−	1.7 $K^- p \to \overline{K}^0 \pi^- p$	

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

54.8±1.7	27k	[5]	ABELE	99D	CBAR	±	0.0 $\bar{p}p \rightarrow K^+K^-\pi^0$	
45.2±1 ±2	80k	[6]	BIRD	89	LASS	−	11 $K^-p \rightarrow \overline{K}^0\pi^-p$	
42.8±7.1	3700		BARTH	83	HBC	+	70 $K^+p \rightarrow K^0\pi^+X$	
64.0±9.2	800	[2,4]	CLELAND	82	SPEC	+	30 $K^+p \rightarrow K^0_S\pi^+p$	
62.0±4.4	3200	[2,4]	CLELAND	82	SPEC	+	50 $K^+p \rightarrow K^0_S\pi^+p$	OCCUR=2
55 ±4	3600	[2,4]	CLELAND	82	SPEC	−	50 $K^+p \rightarrow K^0_S\pi^-p$	OCCUR=3
62.6±3.8	380		DELFOSSE	81	SPEC	+	50 $K^\pm p \rightarrow K^\pm\pi^0p$	
50.5±3.9	187		DELFOSSE	81	SPEC	−	50 $K^\pm p \rightarrow K^\pm\pi^0p$	OCCUR=2

YOUR NOTE

[1] Average of fit results with different parametrizations for the $K\pi$ S-wave. NODE=M018W1;LINKAGE=A
[2] Width errors enlarged by us to $4 \times \Gamma/\sqrt{N}$; see note. NODE=M018W;LINKAGE=D
[3] Inclusive reaction. Complicated background and phase-space effects. NODE=M018W;LINKAGE=I
[4] Number of events in peak reevaluated by us. NODE=M018W;LINKAGE=W
[5] K-matrix pole. NODE=M018W1;LINKAGE=AN
[6] From a partial wave amplitude analysis. NODE=M018W1;LINKAGE=F

$K^*(892)$ REFERENCES

NODE=M018

YOUR PAPER

AAIJ	16N	PR D93 052018	R. Aaij *et al.*	(LHCb Collab.)	REFID=57273
ABELE	99D	PL B468 178	A. Abele *et al.*	(Crystal Barrel Collab.)	REFID=47401
BIRD	89	SLAC-332	P.F. Bird	(SLAC)	REFID=41002
BAUBILLIER	84B	ZPHY C26 37	M. Baubillier *et al.*	(BIRM, CERN, GLAS+)	REFID=22459
NAPIER	84	PL 149B 514	A. Napier *et al.*	(TUFTS, ARIZ, FNAL, FLOR+)	REFID=22460
BARTH	83	NP B223 296	M. Barth *et al.*	(BRUX, CERN, GENO, MONS+)	REFID=22456
CLELAND	82	NP B208 189	W.E. Cleland *et al.*	(DURH, GEVA, LAUS+)	REFID=22455
DELFOSSE	81	NP B183 349	A. Delfosse *et al.*	(GEVA, LAUS)	REFID=21277
TOAFF	81	PR D23 1500	S. Toaff *et al.*	(ANL, KANS)	REFID=22454
AJINENKO	80	ZPHY C5 177	I.V. Ajinenko *et al.*	(SERP, BRUX, MONS+)	REFID=22449
AGUILAR-...	78B	NP B141 101	M. Aguilar-Benitez *et al.*	(MADR, TATA+)	REFID=22438
BALAND	78	NP B140 220	J.F. Baland *et al.*	(MONS, BELG, CERN+)	REFID=20369
COOPER	78	NP B136 365	A.M. Cooper *et al.*	(TATA, CERN, CDEF+)	REFID=22441
PALER	75	NP B96 1	K. Paler *et al.*	(RHEL, SACL, EPOL)	REFID=22435
CLARK	73	NP B54 432	A.G. Clark, L. Lyons, D. Radojicic	(OXF)	REFID=22426
AGUILAR-...	71B	PR D4 2583	M. Aguilar-Benitez, R.L. Eisner, J.B. Kinson	(BNL)	REFID=22408
CRENNELL	69D	PRL 22 487	D.J. Crennell *et al.*	(BNL)	REFID=22399
SCHWEING...	68	PR 166 1317	F. Schweingruber *et al.*	(ANL, NWES)	REFID=22398
BARLOW	67	NC 50A 701	J. Barlow *et al.*	(CERN, CDEF, IRAD, LIVP)	REFID=20041
DEBAERE	67B	NC 51A 401	W. de Baere *et al.*	(BRUX, CERN)	REFID=22390
WOJCICKI	64	PR 135 B484	S.G. Wojcicki	(LRL)	REFID=22379

NODE=M094

$K^*(1410)$

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

$K^*(1410)$ MASS

NODE=M094M

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
1421± 9 OUR AVERAGE						
YOUR DATA 1437± 8±16	190k	[1] AAIJ	16N	LHCB		$D^0 \rightarrow (K^0_S\pi^\mp)K^\pm$
YOUR DATA 1426± 8±24	190k	[2] AAIJ	16N	LHCB		$D^0 \rightarrow K^0_S(K^\pm\pi^\mp)$
1380±21±19		ASTON	88	LASS	0	11 $K^-p \rightarrow K^-\pi^+n$
1420± 7±10		ASTON	87	LASS	0	11 $K^-p \rightarrow \overline{K}^0\pi^+\pi^-n$

NODE=M094M

NODE=M094M

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

1276^{+72}_{-77}	[3,4]	BOITO	09	RVUE		$\tau^- \rightarrow K^0_S\pi^-\nu_\tau$
1367±54		BIRD	89	LASS	−	11 $K^-p \rightarrow \overline{K}^0\pi^-p$
1474±25		BAUBILLIER	82B	HBC	0	8.25 $K^-p \rightarrow \overline{K}^0 2\pi n$
1500±30		ETKIN	80	MPS	0	6 $K^-p \rightarrow \overline{K}^0\pi^+\pi^-n$

YOUR NOTE

[1] Using a parametrization for the $K\pi$ S-wave similar to ASTON 88 with fixed resonance width. NODE=M094M;LINKAGE=A
[2] Using a $K\pi$ S-wave parametrization with resonant and non-resonant contributions. NODE=M094M;LINKAGE=C
[3] From the pole position of the $K\pi$ vector form factor in the complex s-plane and using EPIFANOV 07 data. NODE=M094M;LINKAGE=BI
[4] Systematic uncertainties not estimated. NODE=M094M;LINKAGE=NS

$K^*(1410)$ WIDTH

NODE=M094W

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
236± 18 OUR AVERAGE						
YOUR DATA 210± 20±60	190k	[1] AAIJ	16N	LHCB		$D^0 \rightarrow (K^0_S\pi^\mp)K^\pm$

NODE=M094W

YOUR DATA	$270 \pm 20 \pm 40$	190k	[1]	AAIJ	16N	LHCB		$D^0 \to K^0_S(K^\pm\pi^\mp)$	OCCUR=2
	$176 \pm 52 \pm 22$			ASTON	88	LASS	0	11 $K^- p \to K^-\pi^+ n$	
	$240 \pm 18 \pm 12$			ASTON	87	LASS	0	11 $K^- p \to \overline{K}^0\pi^+\pi^- n$	
	• • • We do not use the following data for averages, fits, limits, etc. • • •								
	198^{+61}_{-87}		[2,3]	BOITO	09	RVUE		$\tau^- \to K^0_S\pi^-\nu_\tau$	
	114 ± 101			BIRD	89	LASS	–	11 $K^- p \to \overline{K}^0\pi^- p$	
	275 ± 65			BAUBILLIER	82B	HBC	0	8.25 $K^- p \to \overline{K}^0 2\pi n$	
	500 ± 100			ETKIN	80	MPS	0	6 $K^- p \to \overline{K}^0\pi^+\pi^- n$	

YOUR NOTE

[1] Using a $K\pi$ S-wave parametrization with resonant and non-resonant contributions. NODE=M094W;LINKAGE=A

[2] From the pole position of the $K\pi$ vector form factor in the complex s-plane and using EPIFANOV 07 data. NODE=M094W;LINKAGE=BI

[3] Systematic uncertainties not estimated. NODE=M094W;LINKAGE=NS

$K^*(1410)$ REFERENCES

NODE=M094

YOUR PAPER

AAIJ	16N	PR D93 052018	R. Aaij *et al.*	(LHCb Collab.)	REFID=57273
BOITO	09	EPJ C59 821	D.R. Boito, R. Escribano, M. Jamin		REFID=52728
EPIFANOV	07	PL B654 65	D. Epifanov *et al.*	(BELLE Collab.)	REFID=51929
BIRD	89	SLAC-332	P.F. Bird	(SLAC)	REFID=41002
ASTON	88	NP B296 493	D. Aston *et al.*	(SLAC, NAGO, CINC, INUS)	REFID=40262
ASTON	87	NP B292 693	D. Aston *et al.*	(SLAC, NAGO, CINC, INUS)	REFID=40234
BAUBILLIER	82B	NP B202 21	M. Baubillier *et al.*	(BIRM, CERN, GLAS+)	REFID=22551
ETKIN	80	PR D22 42	A. Etkin *et al.*	(BNL, CUNY) JP	REFID=22545

Reference = AAIJ 16AH; PR D94 072001
Verifier code = LHCB

Normally we send all verifications for one experiment to one person, usually the spokesperson or data-analysis co-ordinator, who then distributes them to the appropriate people. Please tell us if we should send the verifications for your experiment to someone else.

PLEASE READ NOW

PLEASE REPLY WITHIN ONE WEEK

Vincenzo Vagnoni

EMAIL: vincenzo.vagnoni@bo.infn.it

March 20, 2017

Dear Colleague,

(1) Please check the results of your experiment carefully. They are marked.

(2) Please reply within one week.

(3) Please reply even if everything is correct.

(4) IMPORTANT!! Please tell WHICH papers you are verifying. We have lots of requests out.

(5) Feel free to make comments on our treatment of any of the results (not just yours) you see.

Thank you for helping us make the Review accurate and useful.

Sincerely,

Simon Eidelman
BINP, Budker Inst. of Nuclear Physics
Prospekt Lavrent'eva 11
RU-630090 Novosibirsk
Russian Federation

EMAIL: simon.eidelman@cern.ch

CHARMED MESONS ($C = \pm 1$)

NODE=MXXX035

$D^+ = c\overline{d}$, $D^0 = c\overline{u}$, $\overline{D}^0 = \overline{c}\,u$, $D^- = \overline{c}\,d$, similarly for D^*'s

NODE=MXXX035

NODE=M119

$D_2^*(2460)^0$

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

$J^P = 2^+$ assignment strongly favored (ALBRECHT 89B, ALBRECHT 89H), natural parity confirmed by the helicity analysis (DEL-AMO-SANCHEZ 10P). AAIJ 13CC confirms $J^P = 2^+$ and natural parity.

NODE=M119

$D_2^*(2460)0$ MASS

NODE=M119M

The fit includes $D^\pm$, D^0, $D_s^\pm$, $D^{*\pm}$, D^{*0}, $D_s^{*\pm}$, $D_1(2420)^0$, $D_2^*(2460)^0$, and $D_{s1}(2536)^\pm$ mass and mass difference measurements.

NODE=M119M

NODE=M119M

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT	
2460.56±0.35 OUR AVERAGE		Error includes scale factor of 2.6. See the ideogram below.				
YOUR DATA 2463.7 ±0.4 ±0.7	28k	[1] AAIJ	16AH	LHCB	$B^- \to D^+\pi^-\pi^-$	OCCUR=2
2460.4 ±0.4 ±1.2	82k	AAIJ	13CC	LHCB	$pp \to D^{*+}\pi^- X$	
2460.4 ±0.1 ±0.1	675k	AAIJ	13CC	LHCB	$pp \to D^+\pi^- X$	OCCUR=2
2462.5 ±2.4 $^{+1.3}_{-1.1}$	2.3k	[2] ABRAMOWICZ	13	ZEUS	$e^\pm p \to D^{(*)+}\pi^- X$	
2462.2 ±0.1 ±0.8	243k	DEL-AMO-SA..	10P	BABR	$e^+e^- \to D^+\pi^- X$	
2460.4 ±1.2 ±2.2	3.4k	AUBERT	09AB	BABR	$B^- \to D^+\pi^-\pi^-$	
2461.6 ±2.1 ±3.3		[3] ABE	04D	BELL	$B^- \to D^+\pi^-\pi^-$	
2464.5 ±1.1 ±1.9	5.8k	[3] LINK	04A	FOCS	γ A	
2465 ±3 ±3	486	AVERY	94C	CLE2	$e^+e^- \to D^+\pi^-$X	
2453 ±3 ±2	128	FRABETTI	94B	E687	γBe $\to D^+\pi^-$X	
2461 ±3 ±1	440	AVERY	90	CLEO	$e^+e^- \to D^{*+}\pi^-$X	
2455 ±3 ±5	337	ALBRECHT	89B	ARG	$e^+e^- \to D^+\pi^-$X	
2459 ±3 ±2	153	ANJOS	89C	TPS	$\gamma N \to D^+\pi^-$X	
• • • We do not use the following data for averages, fits, limits, etc. • • •						
2469.1 ±3.7 $^{+1.2}_{-1.3}$	1.5k	[4] CHEKANOV	09	ZEUS	$e^\pm p \to D^{(*)+}\pi^- X$	
2463.3 ±0.6 ±0.8	20k	ABULENCIA	06A	CDF	1900 $p\overline{p} \to D^+\pi^- X$	
2461 ±6	126	[5] ABREU	98M	DLPH	e^+e^-	
2466 ±7	1	ASRATYAN	95	BEBC	53,40 $\nu(\overline{\nu}) \to pX,dX$	

YOUR NOTE

[1] From the amplitude analysis in the model describing the $D^+\pi^-$ wave together with virtual contributions from the $D^*(2007)^0$ and B^{*0} states, and components corresponding to the $D_2^*(2460)^0$, $D_1^*(2680)^0$, $D_3^*(2760)^0$, and $D_2^*(3000)^0$ resonances.

NODE=M119M;LINKAGE=B

[2] From the combined fit of the $M(D^+\pi^-)$ and $M(D^{*+}\pi^-)$ distributions. and A_{D_2} fixed to the theoretical prediction of -1.

NODE=M119M;LINKAGE=AR

[3] Fit includes the contribution from $D_0^*(2400)^0$.

NODE=M119M;LINKAGE=LI

[4] Calculated using the mass difference $m(D_2^{*0}) - m(D^{*+})_{PDG}$ reported below and $m(D^{*+})_{PDG} = 2010.27 \pm 0.17$ MeV. The 0.17 MeV uncertainty of the PDG mass value should be added to the experimental uncertainty of $^{+1.2}_{-1.3}$ MeV.

NODE=M119M;LINKAGE=CH

[5] No systematic error given.

NODE=M119M;LINKAGE=K

$D_2^*(2460)^0$ WIDTH

NODE=M119W

NODE=M119W

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT	
47.5± 1.1 OUR AVERAGE		Error includes scale factor of 1.8. See the ideogram below.				
YOUR DATA 47.0± 0.8± 1.0	28k	[6] AAIJ	16AH	LHCB	$B^- \to D^+\pi^-\pi^-$	OCCUR=3
43.2± 1.2± 3.0	82k	AAIJ	13CC	LHCB	$pp \to D^{*+}\pi^- X$	

45.6± 0.4± 1.1	675k		AAIJ	13CC	LHCB	$pp \to D^+\pi^- X$	OCCUR=2
$46.6\pm 8.1^{+5.9}_{-3.8}$	2.3k	[7]	ABRAMOWICZ	13	ZEUS	$e^\pm p \to D^{(*)+}\pi^- X$	
50.5± 0.6± 0.7	243k		DEL-AMO-SA..	10P	BABR	$e^+e^- \to D^+\pi^- X$	
41.8± 2.5± 2.9	3.4k		AUBERT	09AB	BABR	$B^- \to D^+\pi^-\pi^-$	
49.2± 2.3± 1.3	20k		ABULENCIA	06A	CDF	1900 $p\overline{p} \to D^+\pi^- X$	
45.6± 4.4± 6.7		[8]	ABE	04D	BELL	$B^- \to D^+\pi^-\pi^-$	
38.7± 5.3± 2.9	5.8k	[8]	LINK	04A	FOCS	γ A	
$28\ ^{+8}_{-7}\ \pm 6$	486		AVERY	94C	CLE2	$e^+e^- \to D^+\pi^- X$	
25 ±10 ± 5	128		FRABETTI	94B	E687	γBe $\to D^+\pi^- X$	
$20\ ^{+9}_{-12}\ ^{+9}_{-10}$	440		AVERY	90	CLEO	$e^+e^- \to D^{*+}\pi^- X$	
$15\ ^{+13}_{-10}\ ^{+5}_{-10}$	337		ALBRECHT	89B	ARG	$e^+e^- \to D^+\pi^- X$	
20 ±10 ± 5	153		ANJOS	89C	TPS	$\gamma N \to D^+\pi^- X$	

YOUR NOTE

[6] From the amplitude analysis in the model describing the $D^+\pi^-$ wave together with virtual contributions from the $D^*(2007)^0$ and B^{*0} states, and components corresponding to the $D_2^*(2460)^0$, $D_1^*(2680)^0$, $D_3^*(2760)^0$, and $D_2^*(3000)^0$ resonances. NODE=M119W;LINKAGE=D

[7] From the combined fit of the $M(D^+\pi^-)$ and $M(D^{*+}\pi^-)$ distributions. and A_{D_2} fixed to the theoretical prediction of -1. NODE=M119W;LINKAGE=AR

[8] Fit includes the contribution from $D_0^*(2400)^0$. NODE=M119W;LINKAGE=LI

$D_2^*(2460)^0$ REFERENCES

NODE=M119

YOUR PAPER

AAIJ	16AH	PR D94 072001	R. Aaij *et al.*	(LHCb Collab.)	REFID=57518
AAIJ	13CC	JHEP 1309 145	R. Aaij *et al.*	(LHCb Collab.)	REFID=55581
ABRAMOWICZ	13	NP B866 229	H. Abramowicz *et al.*	(ZEUS Collab.)	REFID=54743
DEL-AMO-SA...	10P	PR D82 111101	P. del Amo Sanchez *et al.*	(BABAR Collab.)	REFID=53534
AUBERT	09AB	PR D79 112004	B. Aubert *et al.*	(BABAR Collab.)	REFID=52941
CHEKANOV	09	EPJ C60 25	S. Chekanov *et al.*	(ZEUS Collab.)	REFID=52733
ABULENCIA	06A	PR D73 051104	A. Abulencia *et al.*	(CDF Collab.)	REFID=51054
ABE	04D	PR D69 112002	K. Abe *et al.*	(BELLE Collab.)	REFID=50011
LINK	04A	PL B586 11	J.M. Link *et al.*	(FOCUS Collab.)	REFID=49775
ABREU	98M	PL B426 231	P. Abreu *et al.*	(DELPHI Collab.)	REFID=46315
ASRATYAN	95	ZPHY C68 43	A.E. Asratyan *et al.*	(BIRM, BELG, CERN+)	REFID=44439
AVERY	94C	PL B331 236	P. Avery *et al.*	(CLEO Collab.)	REFID=44096
FRABETTI	94B	PRL 72 324	P.L. Frabetti *et al.*	(FNAL E687 Collab.)	REFID=43687
AVERY	90	PR D41 774	P. Avery, D. Besson	(CLEO Collab.)	REFID=41013
ALBRECHT	89B	PL B221 422	H. Albrecht *et al.*	(ARGUS Collab.) JP	REFID=40736
ALBRECHT	89H	PL B232 398	H. Albrecht *et al.*	(ARGUS Collab.) JP	REFID=41001
ANJOS	89C	PRL 62 1717	J.C. Anjos *et al.*	(FNAL E691 Collab.)	REFID=40737

NODE=M199

$D_J^*(2600)$ was $D(2600)$,

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

OMITTED FROM SUMMARY TABLE

J^P consistent with natural parity (DEL-AMO-SANCHEZ 10P, AAIJ 13CC). NODE=M199

$D_J^*(2600)$ MASS

NODE=M199M

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*	NODE=M199M
2623 ±12 OUR AVERAGE		Error includes scale factor of 4.8. See the ideogram below.					
YOUR DATA 2681.1± 5.6±14.0	28k	[1] AAIJ	16AH	LHCB		$B^- \to D^+\pi^-\pi^-$	
2649.2± 3.5± 3.5	51k	AAIJ	13CC	LHCB		$pp \to D^{*+}\pi^- X$	
2608.7± 2.4± 2.5	26k	DEL-AMO-SA..	10P	BABR	0	$e^+e^- \to D^+\pi^- X$	
2621.3± 3.7± 4.2	13k	[2] DEL-AMO-SA..	10P	BABR	+	$e^+e^- \to D^0\pi^+ X$	OCCUR=2

YOUR NOTE

[1] From the amplitude analysis in the model describing the $D^+\pi^-$ wave together with virtual contributions from the $D^*(2007)^0$ and B^{*0} states, and components corresponding to the $D_2^*(2460)^0$, $D_1^*(2680)^0$, $D_3^*(2760)^0$, and $D_2^*(3000)^0$ resonances. NODE=M199M;LINKAGE=A

[2] At a fixed width of 93 MeV. NODE=M199M;LINKAGE=DE

$D_J^*(2600)$ WIDTH

NODE=M199W

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT	
139 ±31 OUR AVERAGE		Error includes scale factor of 3.2. See the ideogram below.			NODE=M199W
YOUR DATA 186.7± 8.5±11.9	28k	[3] AAIJ	16AH LHCB	$B^- \to D^+\pi^-\pi^-$	
140.2±17.1±18.6	51k	AAIJ	13CC LHCB	$pp \to D^{*+}\pi^- X$	
93 ± 6 ±13	26k	DEL-AMO-SA..10P	BABR	$e^+e^- \to D^+\pi^- X$	

YOUR NOTE [3] From the amplitude analysis in the model describing the $D^+\pi^-$ wave together with virtual contributions from the $D^*(2007)^0$ and B^{*0} states, and components corresponding to the $D_2^*(2460)^0$, $D_1^*(2680)^0$, $D_3^*(2760)^0$, and $D_2^*(3000)^0$ resonances. NODE=M199W;LINKAGE=A

$D_J^*(2600)$ REFERENCES

NODE=M199

YOUR PAPER
AAIJ 16AH PR D94 072001 R. Aaij *et al.* (LHCb Collab.) REFID=57518
AAIJ 13CC JHEP 1309 145 R. Aaij *et al.* (LHCb Collab.) REFID=55581
DEL-AMO-SA... 10P PR D82 111101 P. del Amo Sanchez *et al.* (BABAR Collab.) REFID=53534

NODE=M203

$D(2750)$

$I(J^P) = \frac{1}{2}(3^-)$

OMITTED FROM SUMMARY TABLE

J^P determined by AAIJ 15Y from the Dalitz plot analysis of $B^0 \to \overline{D}^0\pi^+\pi^-$ decays. J^P consistent with natural parity (AAIJ 13CC). NODE=M203

$D(2750)$ MASS

NODE=M203M

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	CHG	COMMENT	
2763.5± 3.4 OUR AVERAGE		Error includes scale factor of 2.2. See the ideogram below.				NODE=M203M
YOUR DATA 2775.5± 4.5± 6.5	28k	[1] AAIJ	16AH LHCB		$B^- \to D^+\pi^-\pi^-$	
2798 ± 7 ± 7		[2] AAIJ	15Y LHCB		$B^0 \to \overline{D}^0\pi^+\pi^-$	
2761.1± 5.1± 6.5	14k	AAIJ	13CC LHCB	0	$pp \to D^{*+}\pi^- X$	
2760.1± 1.1± 3.7	56k	AAIJ	13CC LHCB	0	$pp \to D^+\pi^- X$	OCCUR=2
2771.7± 1.7± 3.8	20k	AAIJ	13CC LHCB	+	$pp \to D^0\pi^+ X$	OCCUR=3
2752.4± 1.7± 2.7	23.5k	[3] DEL-AMO-SA..10P	BABR	0	$e^+e^- \to D^{*+}\pi^- X$	
2763.3± 2.3± 2.3	11.3k	[3] DEL-AMO-SA..10P	BABR	0	$e^+e^- \to D^+\pi^- X$	OCCUR=2
2769.7± 3.8± 1.5	5.7k	[3,4] DEL-AMO-SA..10P	BABR	+	$e^+e^- \to D^0\pi^+ X$	OCCUR=3
• • • We do not use the following data for averages, fits, limits, etc. • • •						
2802 ±11 ±10		[5] AAIJ	15Y LHCB		$B^0 \to \overline{D}^0\pi^+\pi^-$	OCCUR=2

YOUR NOTE [1] From the amplitude analysis in the model describing the $D^+\pi^-$ wave together with virtual contributions from the $D^*(2007)^0$ and B^{*0} states, and components corresponding to the $D_2^*(2460)^0$, $D_1^*(2680)^0$, $D_3^*(2760)^0$, and $D_2^*(3000)^0$ resonances. NODE=M203M;LINKAGE=C

[2] Modeling the $\pi^+\pi^-$ S-wave with the Isobar formalism. NODE=M203M;LINKAGE=A

[3] The states observed in the $D^*\pi$ and $D\pi$ final states are not necessarily the same. NODE=M203M;LINKAGE=DE

[4] At a fixed width of 60.9 MeV. NODE=M203M;LINKAGE=DA

[5] Modeling the $\pi^+\pi^-$ S-wave with the K-matrix formalism. NODE=M203M;LINKAGE=B

$D(2750)$ WIDTH

NODE=M203W

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	CHG	COMMENT	
66 ± 5 OUR AVERAGE						NODE=M203W
YOUR DATA 95.3± 9.6±34.0	28k	[6] AAIJ	16AH LHCB		$B^- \to D^+\pi^-\pi^-$	
105 ±18 ±24		[7] AAIJ	15Y LHCB		$B^0 \to \overline{D}^0\pi^+\pi^-$	
74.4± 3.4±37.0	14k	AAIJ	13CC LHCB	0	$pp \to D^{*+}\pi^- X$	
74.4± 3.4±19.1	56k	AAIJ	13CC LHCB	0	$pp \to D^+\pi^- X$	OCCUR=2
66.7± 6.6±10.5	20k	AAIJ	13CC LHCB	+	$pp \to D^0\pi^+ X$	OCCUR=4
71 ± 6 ±11	23.5k	[8] DEL-AMO-SA..10P	BABR		$e^+e^- \to D^{*+}\pi^- X$	
60.9± 5.1± 3.6	11.3k	[8] DEL-AMO-SA..10P	BABR		$e^+e^- \to D^+\pi^- X$	OCCUR=2
• • • We do not use the following data for averages, fits, limits, etc. • • •						
154 ±27 ±16		[9] AAIJ	15Y LHCB		$B^0 \to \overline{D}^0\pi^+\pi^-$	OCCUR=2

YOUR NOTE [6] From the amplitude analysis in the model describing the $D^+\pi^-$ wave together with virtual contributions from the $D^*(2007)^0$ and B^{*0} states, and components corresponding to the $D_2^*(2460)^0$, $D_1^*(2680)^0$, $D_3^*(2760)^0$, and $D_2^*(3000)^0$ resonances. NODE=M203W;LINKAGE=C

[7] Modeling the $\pi^+\pi^-$ S-wave with the Isobar formalism. NODE=M203W;LINKAGE=A

[8] The states observed in the $D^*\pi$ and $D\pi$ final states are not necessarily the same. NODE=M203W;LINKAGE=DE

[9] Modeling the $\pi^+\pi^-$ S-wave with the K-matrix formalism. NODE=M203W;LINKAGE=B

$D(2750)$ REFERENCES

NODE=M203

YOUR PAPER	AAIJ	16AH	PR D94 072001	R. Aaij *et al.*	(LHCb Collab.)	REFID=57518
	AAIJ	15Y	PR D92 032002	R. Aaij *et al.*	(LHCb Collab.) JP	REFID=56609
	AAIJ	13CC	JHEP 1309 145	R. Aaij *et al.*	(LHCb Collab.)	REFID=55581
	DEL-AMO-SA...	10P	PR D82 111101	P. del Amo Sanchez *et al.*	(BABAR Collab.)	REFID=53534

NODE=M229

$D(3000)^0$

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

OMITTED FROM SUMMARY TABLE

Both natural- and unnatural-parity components observed depending on the decay mode (AAIJ 13CC).

NODE=M229

$D(3000)^0$ MASS

NODE=M229M

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
YOUR DATA **3214 ±29 ±49**	28k	[1] AAIJ	16AH	LHCB	$B^- \to D^+\pi^-\pi^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
2971.8± 8.7	9.5k	[2,3] AAIJ	13CC	LHCB	$pp \to D^{*+}\pi^- X$
3008.1± 4.0	17.6k	[2,4] AAIJ	13CC	LHCB	$pp \to D^+\pi^- X$

NODE=M229M

OCCUR=2

YOUR NOTE [1] From the amplitude analysis in the model describing the $D^+\pi^-$ wave together with virtual contributions from the $D^*(2007)^0$ and B^{*0} states, and components corresponding to the $D_2^*(2460)^0$, $D_1^*(2680)^0$, $D_3^*(2760)^0$, and $D_2^*(3000)^0$ resonances.

NODE=M229M;LINKAGE=D

[2] Systematic uncertainty not estimated.

NODE=M229M;LINKAGE=A

[3] Unnatural parity preferred.

NODE=M229M;LINKAGE=B

[4] Natural parity state. A state $D(3000)^+$ is possibly seen in $D^0\pi^+$ final state.

NODE=M229M;LINKAGE=C

$D(3000)^0$ WIDTH

NODE=M229W

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
YOUR DATA **186 ±38 ±72**	28k	[5] AAIJ	16AH	LHCB	$B^- \to D^+\pi^-\pi^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
188.1±44.8	9.5k	[6,7] AAIJ	13CC	LHCB	$pp \to D^{*+}\pi^- X$
110.5±11.5	17.6k	[6,8] AAIJ	13CC	LHCB	$pp \to D^+\pi^- X$

NODE=M229W

OCCUR=2

YOUR NOTE [5] From the amplitude analysis in the model describing the $D^+\pi^-$ wave together with virtual contributions from the $D^*(2007)^0$ and B^{*0} states, and components corresponding to the $D_2^*(2460)^0$, $D_1^*(2680)^0$, $D_3^*(2760)^0$, and $D_2^*(3000)^0$ resonances.

NODE=M229W;LINKAGE=D

[6] Systematic uncertainty not estimated.

NODE=M229W;LINKAGE=A

[7] Unnatural parity preferred.

NODE=M229W;LINKAGE=C

[8] Natural parity state. A state $D(3000)^+$ is possibly seen in $D^0\pi^+$ final state.

NODE=M229W;LINKAGE=B

$D(3000)^0$ REFERENCES

NODE=M229

YOUR PAPER	AAIJ	16AH	PR D94 072001	R. Aaij *et al.*	(LHCb Collab.)	REFID=57518
	AAIJ	13CC	JHEP 1309 145	R. Aaij *et al.*	(LHCb Collab.)	REFID=55581

Reference = JIA 17; PR D95 012001
Verifier code = LHCB

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PLEASE READ NOW

PLEASE REPLY WITHIN ONE WEEK

Vincenzo Vagnoni

EMAIL: vincenzo.vagnoni@bo.infn.it

March 20, 2017

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(2) Please reply within one week.

(3) Please reply even if everything is correct.

(4) IMPORTANT!! Please tell WHICH papers you are verifying. We have lots of requests out.

(5) Feel free to make comments on our treatment of any of the results (not just yours) you see.

Thank you for helping us make the Review accurate and useful.

Sincerely,

Simon Eidelman
BINP, Budker Inst. of Nuclear Physics
Prospekt Lavrent'eva 11
RU-630090 Novosibirsk
Russian Federation

EMAIL: simon.eidelman@cern.ch

$b\bar{b}$ MESONS

NODE=MXXX030

NODE=M049

$\Upsilon(1S)$

$I^G(J^{PC}) = 0^-(1^{--})$

$\Upsilon(1S)$ BRANCHING RATIOS

NODE=M049225

$\Gamma(\chi_{c1}\,\text{anything})/\Gamma_{\text{total}}$ **Γ_{25}/Γ**

NODE=M049P13
NODE=M049P13

VALUE (units 10^{-4})	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
YOUR DATA **1.90±0.43±0.14**	215	JIA	17	LHCB	$\Upsilon(1S) \to \gamma J/\psi(1S)$

$\Upsilon(1S)$ REFERENCES

NODE=M049

YOUR PAPER	JIA	17	PR D95 012001	S. Jia *et al.*	(LHCb Collab.)	REFID=57635

NODE=M052

$\Upsilon(2S)$

$I^G(J^{PC}) = 0^-(1^{--})$

$\Upsilon(2S)$ BRANCHING RATIOS

NODE=M052225

$\Gamma(\chi_{c1}\,\text{anything})/\Gamma_{\text{total}}$ **Γ_{16}/Γ**

NODE=M052R00
NODE=M052R00

VALUE (units 10^{-4})	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
YOUR DATA **2.24±0.44±0.20**	376	JIA	17	LHCB	$\Upsilon(2S) \to \gamma J/\psi(1S)$

$\Gamma(\chi_{c2}\,\text{anything})/\Gamma_{\text{total}}$ **Γ_{17}/Γ**

NODE=M052R67
NODE=M052R67

VALUE (units 10^{-4})	*DOCUMENT ID*		*TECN*	*COMMENT*
YOUR DATA **2.28±0.73±0.34**	JIA	17	LHCB	$\Upsilon(2S) \to \gamma J/\psi(1S)$

$\Upsilon(2S)$ REFERENCES

NODE=M052

YOUR PAPER	JIA	17	PR D95 012001	S. Jia *et al.*	(LHCb Collab.)	REFID=57635

Reference = AAIJ 16AI; PRL 117 152003
Verifier code = LHCB

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BOTTOM, STRANGE MESONS
($B = \pm 1$, $S = \mp 1$)

$B_s^0 = s\overline{b}$, $\overline{B}_s^0 = \overline{s}\,b$, similarly for B_s^*'s

NODE=MXXX046

NODE=MXXX046

NODE=M232

$X(5568)^{\pm}$

$I(J^P) = ?(?^?)$

OMITTED FROM SUMMARY TABLE

Seen as a peak in the $B_s\pi^{\pm}$ mass spectrum with a significance of more than 3σ by ABAZOV 16E in inclusive $p\overline{p}$ collisions at 1.96 TeV. Not seen by AAIJ 16AI. Needs confirmation.

NODE=M232

$X(5568)^{\pm}$ BRANCHING RATIOS

NODE=M232220

$\Gamma(B_s\pi^{\pm})/\Gamma_{total}$ **Γ_1/Γ**

NODE=M232R01
NODE=M232R01

	VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
YOUR DATA	not seen		[1] AAIJ	16AI	LHCB	$pp \to B_s^0\pi^{\pm}X$
	seen	133	[2] ABAZOV	16E	D0	$p\overline{p} \to B_s\pi^{\pm}X$

YOUR NOTE

[1] Not seen in 3 fb^{-1} of pp collision data at $\sqrt{s} = 7$ and 8 TeV in a scan over the $X(5568)$ mass and width, with B_s mesons reconstructed in decays to $D_s^-\pi^+$ or $J/\psi\phi$.

NODE=M232R01;LINKAGE=B

[2] Seen in $p\overline{p}$ collisions at 1.96 TeV at a rate of $(8.6 \pm 1.9 \pm 1.4)$% relative to inclusive B_s production in the kinematic region $10 < p_T(B_s) < 30$ GeV/c. An alternative possibility, $X(5568)^{\pm} \to B_s^*\pi^{\pm}$ with a missing γ, could not be ruled out.

NODE=M232R01;LINKAGE=A

$X(5568)^{\pm}$ REFERENCES

NODE=M232

YOUR PAPER

AAIJ	16AI	PRL 117 152003	R. Aaij *et al.*	(LHCb Collab.)	REFID=57549
ABAZOV	16E	PRL 117 022003	V.M. Abazov *et al.*	(D0 Collab.)	REFID=57453

Reference = AAIJ 17C; PRL 118 022003
Verifier code = LHCB

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STRANGE MESONS
($S = \pm 1$, $C = B = 0$)

$K^+ = u\bar{s}$, $K^0 = d\bar{s}$, $\overline{K}^0 = \bar{d}s$, $K^- = \bar{u}s$, similarly for K^*'s

NODE=MXXX020

NODE=MXXX020

NODE=M099

$K_1(1650)$

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

OMITTED FROM SUMMARY TABLE

This entry contains various peaks in strange meson systems ($K^+\phi$, $K\pi\pi$) reported in partial-wave analysis in the 1600–1900 mass region.

NODE=M099

$K_1(1650)$ MASS

NODE=M099M

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
1672±50 OUR AVERAGE		Error includes scale factor of 1.1.				
YOUR DATA $1793\pm59^{+153}_{-101}$	4289	[1] AAIJ	17C	LHCB		$B^+ \to J/\psi\phi K^+$
1650 ± 50		FRAME	86	OMEG	+	13 $K^+p \to \phi K^+p$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
~ 1840		ARMSTRONG	83	OMEG	−	18.5 $K^-p \to 3Kp$
~ 1800		DAUM	81C	CNTR	−	63 $K^-p \to K^-2\pi p$
YOUR NOTE [1] From an amplitude analysis of the decay $B^+ \to J/\psi\phi K^+$ with a significance of 7.6 σ.						

NODE=M099M

NODE=M099M;LINKAGE=A

$K_1(1650)$ WIDTH

NODE=M099W

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
158± 50 OUR AVERAGE						
YOUR DATA $365\pm157^{+138}_{-215}$	4289	[2] AAIJ	17C	LHCB		$B^+ \to J/\psi\phi K^+$
150 ± 50		FRAME	86	OMEG	+	13 $K^+p \to \phi K^+p$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
~ 250		DAUM	81C	CNTR	−	63 $K^-p \to K^-2\pi p$
YOUR NOTE [2] From an amplitude analysis of the decay $B^+ \to J/\psi\phi K^+$ with a significance of 7.6 σ.						

NODE=M099W

NODE=M099W;LINKAGE=A

$K_1(1650)$ REFERENCES

NODE=M099

YOUR PAPER AAIJ	17C	PRL 118 022003	R. Aaij *et al.*	(LHCb Collab.)
Also		PR D95 012002	R. Aaij *et al.*	(LHCb Collab.)
FRAME	86	NP B276 667	D. Frame *et al.*	(GLAS)
ARMSTRONG	83	NP B221 1	T.A. Armstrong *et al.*	(BARI, BIRM, CERN+)
DAUM	81C	NP B187 1	C. Daum *et al.*	(AMST, CERN, CRAC, MPIM+)

REFID=57657
REFID=57636
REFID=20569
REFID=22801
REFID=22548

NODE=M095

$K^*(1680)$

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

$K^*(1680)$ MASS

NODE=M095M

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
1718±18 OUR AVERAGE						
YOUR DATA $1722\pm20^{+33}_{-109}$	4289	[1] AAIJ	17C	LHCB		$B^+ \to J/\psi\phi K^+$
$1677\pm10\pm 32$		ASTON	88	LASS	0	11 $K^-p \to K^-\pi^+n$
$1735\pm10\pm 20$		ASTON	87	LASS	0	11 $K^-p \to \overline{K}^0\pi^+\pi^-n$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
1678 ± 64		BIRD	89	LASS	−	11 $K^-p \to \overline{K}^0\pi^-p$
1800 ± 70		ETKIN	80	MPS	0	6 $K^-p \to \overline{K}^0\pi^+\pi^-n$
~ 1650		ESTABROOKS	78	ASPK	0	13 $K^\pm p \to K^\pm\pi^\pm n$

NODE=M095M

YOUR NOTE [1] From an amplitude analysis of the decay $B^+ \to J/\psi\phi K^+$ with a significance of 8.5 σ. NODE=M095M;LINKAGE=A

$K^*(1680)$ WIDTH

NODE=M095W

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
322±110 OUR AVERAGE Error includes scale factor of 4.2.						
YOUR DATA $354\pm 75^{+140}_{-181}$	4289	[2] AAIJ	17C	LHCB		$B^+ \to J/\psi\phi K^+$
$205\pm 16\pm 34$		ASTON	88	LASS	0	11 $K^- p \to K^-\pi^+ n$
$423\pm 18\pm 30$		ASTON	87	LASS	0	11 $K^- p \to \overline{K}^0\pi^+\pi^- n$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
454 ± 270		BIRD	89	LASS	−	11 $K^- p \to \overline{K}^0\pi^- p$
170 ± 30		ETKIN	80	MPS	0	6 $K^- p \to \overline{K}^0\pi^+\pi^- n$
250 to 300		ESTABROOKS	78	ASPK	0	13 $K^\pm p \to K^\pm\pi^\pm n$

YOUR NOTE [2] From an amplitude analysis of the decay $B^+ \to J/\psi\phi K^+$ with a significance of 8.5 σ. NODE=M095W;LINKAGE=A

$K^*(1680)$ BRANCHING RATIOS

NODE=M095220

$\Gamma(K\phi)/\Gamma_{\text{total}}$ Γ_4/Γ

NODE=M095R00

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
YOUR DATA **seen**	4289	[3] AAIJ	17C	LHCB	$B^+ \to J/\psi\phi K^+$

NODE=M095R00

YOUR NOTE [3] From an amplitude analysis of the decay $B^+ \to J/\psi\phi K^+$ with a significance of 8.5 σ. NODE=M095R00;LINKAGE=A

$K^*(1680)$ REFERENCES

NODE=M095

YOUR PAPER

AAIJ 17C	PRL 118 022003	R. Aaij *et al.*	(LHCb Collab.)	REFID=57657
Also	PR D95 012002	R. Aaij *et al.*	(LHCb Collab.)	REFID=57636
BIRD 89	SLAC-332	P.F. Bird	(SLAC)	REFID=41002
ASTON 88	NP B296 493	D. Aston *et al.*	(SLAC, NAGO, CINC, INUS)	REFID=40262
ASTON 87	NP B292 693	D. Aston *et al.*	(SLAC, NAGO, CINC, INUS)	REFID=40234
ETKIN 80	PR D22 42	A. Etkin *et al.*	(BNL, CUNY) JP	REFID=22545
ESTABROOKS 78	NP B133 490	P.G. Estabrooks *et al.*	(MCGI, CARL, DURH+) JP	REFID=22443

NODE=M023

$K_2(1770)$

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

See our mini-review in the 2004 edition of this *Review*, PDG 04. NODE=M023

$K_2(1770)$ MASS

NODE=M023M

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
1773± 8 OUR AVERAGE						
YOUR DATA $1777\pm 35^{+122}_{-77}$	4289	[1] AAIJ	17C	LHCB		$B^+ \to J/\psi\phi K^+$
1773 ± 8		[2] ASTON	93	LASS		$11 K^- p \to K^-\omega p$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
1743 ± 15		TIKHOMIROV	03	SPEC		40.0 $\pi^- C \to K^0_S K^0_S K^0_L X$
1810 ± 20		FRAME	86	OMEG	+	13 $K^+ p \to \phi K^+ p$
~ 1730		ARMSTRONG	83	OMEG	−	18.5 $K^- p \to 3K p$
~ 1780		[3] DAUM	81C	CNTR	−	63 $K^- p \to K^- 2\pi p$
1710 ± 15	60	CHUNG	74	HBC	−	7.3 $K^- p \to K^-\omega p$
1767 ± 6		BLIEDEN	72	MMS	−	11–16 $K^- p$
1730 ± 20	306	[4] FIRESTONE	72B	DBC	+	12 $K^+ d$
1765 ± 40		[5] COLLEY	71	HBC	+	10 $K^+ p \to K 2\pi N$
1740		DENEGRI	71	DBC	−	12.6 $K^- d \to \overline{K} 2\pi d$
1745 ± 20		AGUILAR-...	70C	HBC	−	4.6 $K^- p$
1780 ± 15		BARTSCH	70C	HBC	−	10.1 $K^- p$
1760 ± 15		LUDLAM	70	HBC	−	12.6 $K^- p$

YOUR NOTE
[1] From an amplitude analysis of the decay $B^+ \to J/\psi\phi K^+$ with a significance of 5.0 σ. NODE=M023M;LINKAGE=C
[2] From a partial wave analysis of the $K^-\omega$ system. NODE=M023M;LINKAGE=A
[3] From a partial wave analysis of the $K^-2\pi$ system. NODE=M023M;LINKAGE=B
[4] Produced in conjunction with excited deuteron. NODE=M023M;LINKAGE=P
[5] Systematic errors added correspond to spread of different fits. NODE=M023M;LINKAGE=X

$K_2(1770)$ WIDTH

NODE=M023W

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
186± 14 OUR AVERAGE						
YOUR DATA $217\pm116^{+221}_{-154}$	4289	[6] AAIJ	17C	LHCB		$B^+ \to J/\psi\phi K^+$
186± 14		[7] ASTON	93	LASS		$11 K^- p \to K^-\omega p$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
147± 70		TIKHOMIROV	03	SPEC		40.0 π^- C $\to$ $K^0_S K^0_S K^0_L$ X
140± 40		FRAME	86	OMEG	+	13 $K^+ p \to \phi K^+ p$
~ 220		ARMSTRONG	83	OMEG	−	18.5 $K^- p \to 3K p$
~ 210		[8] DAUM	81C	CNTR	−	63 $K^- p \to K^- 2\pi p$
110± 50	60	CHUNG	74	HBC	−	7.3 $K^- p \to K^-\omega p$
100± 26		BLIEDEN	72	MMS	−	11–16 $K^- p$
210± 30	306	[9] FIRESTONE	72B	DBC	+	12 $K^+ d$
90± 70		[10] COLLEY	71	HBC	+	10 $K^+ p \to K 2\pi N$
130		DENEGRI	71	DBC	−	12.6 $K^- d \to \overline{K} 2\pi d$
100± 50		AGUILAR-...	70C	HBC	−	4.6 $K^- p$
138± 40		BARTSCH	70C	HBC	−	10.1 $K^- p$
50^{+40}_{-20}		LUDLAM	70	HBC	−	12.6 $K^- p$

YOUR NOTE
[6] From an amplitude analysis of the decay $B^+ \to J/\psi\phi K^+$ with a significance of 5.0 σ. NODE=M023W;LINKAGE=A
[7] From a partial wave analysis of the $K^-\omega$ system. NODE=M023W;LINKAGE=B
[8] From a partial wave analysis of the $K^-2\pi$ system. NODE=M023W;LINKAGE=C
[9] Produced in conjunction with excited deuteron. NODE=M023W;LINKAGE=P
[10] Systematic errors added correspond to spread of different fits. NODE=M023W;LINKAGE=X

$K_2(1770)$ BRANCHING RATIOS

NODE=M023220

$\Gamma(K\phi)/\Gamma_{total}$ **Γ_6/Γ**

NODE=M023R5
NODE=M023R5

VALUE	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
YOUR DATA seen	4289	[12] AAIJ	17C	LHCB		$B^+ \to J/\psi\phi K^+$
seen		ARMSTRONG	83	OMEG	−	18.5 $K^- p \to K^-\phi N$

YOUR NOTE
[12] From an amplitude analysis of the decay $B^+ \to J/\psi\phi K^+$ with a significance of 5.0 σ. NODE=M023R5;LINKAGE=A

$K_2(1770)$ REFERENCES

NODE=M023

YOUR PAPER

AAIJ	17C	PRL 118 022003	R. Aaij *et al.*	(LHCb Collab.)
Also		PR D95 012002	R. Aaij *et al.*	(LHCb Collab.)
PDG	04	PL B592 1	S. Eidelman *et al.*	(PDG Collab.)
TIKHOMIROV	03	PAN 66 828	G.D. Tikhomirov *et al.*	
		Translated from YAF 66 860.		
ASTON	93	PL B308 186	D. Aston *et al.*	(SLAC, NAGO, CINC, INUS)
FRAME	86	NP B276 667	D. Frame *et al.*	(GLAS)
ARMSTRONG	83	NP B221 1	T.A. Armstrong *et al.*	(BARI, BIRM, CERN+)
DAUM	81C	NP B187 1	C. Daum *et al.*	(AMST, CERN, CRAC, MPIM+)
CHUNG	74	PL 51B 413	S.U. Chung *et al.*	(BNL)
BLIEDEN	72	PL 39B 668	H.R. Blieden *et al.*	(STON, NEAS)
FIRESTONE	72B	PR D5 505	A. Firestone *et al.*	(LBL)
COLLEY	71	NP B26 71	D.C. Colley *et al.*	(BIRM, GLAS)
DENEGRI	71	NP B28 13	D. Denegri *et al.*	(JHU) JP
AGUILAR-...	70C	PRL 25 54	M. Aguilar-Benitez *et al.*	(BNL)
BARTSCH	70C	PL 33B 186	J. Bartsch *et al.*	(AACH, BERL, CERN+)
LUDLAM	70	PR D2 1234	T. Ludlam, J. Sandweiss, A.J. Slaughter	(YALE)

REFID=57657
REFID=57636
REFID=49653
REFID=49423
REFID=43597
REFID=20569
REFID=22801
REFID=22548
REFID=22735
REFID=22788
REFID=22506
REFID=22785
REFID=22497
REFID=22782
REFID=22783
REFID=22784

NODE=M146

$K_2(1820)$

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

See our mini-review in the 2004 edition of this *Review* (PDG 04) under $K_2(1770)$. NODE=M146

$K_2(1820)$ MASS

NODE=M146M

	VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT	
	1819±12 OUR AVERAGE						NODE=M146M
YOUR DATA	$1853 \pm 27^{+18}_{-35}$	4289	[1] AAIJ	17C	LHCB	$B^+ \to J/\psi\phi K^+$	
	1816±13		[2] ASTON	93	LASS	$11 K^- p \to K^- \omega p$	
	• • • We do not use the following data for averages, fits, limits, etc. • • •						
	~ 1840		[3] DAUM	81C	CNTR	63 $K^- p \to K^- 2\pi p$	
YOUR NOTE	[1] From an amplitude analysis of the decay $B^+ \to J/\psi\phi K^+$ with a significance of 3.0 σ.						NODE=M146M;LINKAGE=B
	[2] From a partial wave analysis of the $K^-\omega$ system.						NODE=M146M;LINKAGE=A
	[3] From a partial wave analysis of the $K^- 2\pi$ system.						NODE=M146M;LINKAGE=C

$K_2(1820)$ WIDTH

NODE=M146W

	VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT	NODE=M146W
	264±34 OUR AVERAGE						
YOUR DATA	$167 \pm 58^{+82}_{-72}$	4289	[4] AAIJ	17C	LHCB	$B^+ \to J/\psi\phi K^+$	
	276±35		[5] ASTON	93	LASS	$11 K^- p \to K^- \omega p$	
	• • • We do not use the following data for averages, fits, limits, etc. • • •						
	~ 230		[6] DAUM	81C	CNTR	63 $K^- p \to K^- 2\pi p$	
YOUR NOTE	[4] From an amplitude analysis of the decay $B^+ \to J/\psi\phi K^+$ with a significance of 3.0 σ.						NODE=M146W;LINKAGE=A
	[5] From a partial wave analysis of the $K^-\omega$ system.						NODE=M146W;LINKAGE=B
	[6] From a partial wave analysis of the $K^- 2\pi$ system.						NODE=M146W;LINKAGE=C

$K_2(1820)$ BRANCHING RATIOS

NODE=M146220

$\Gamma(K\phi)/\Gamma_{\text{total}}$ Γ_6/Γ NODE=M146R00

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT	NODE=M146R00
YOUR DATA **seen**	4289	[7] AAIJ	17C	LHCB	$B^+ \to J/\psi\phi K^+$	
YOUR NOTE [7] From an amplitude analysis of the decay $B^+ \to J/\psi\phi K^+$ with a significance of 3.0 σ.						NODE=M146R00;LINKAGE=A

$K_2(1820)$ REFERENCES

NODE=M146

YOUR PAPER AAIJ	17C	PRL 118 022003	R. Aaij *et al.*	(LHCb Collab.)	REFID=57657
Also		PR D95 012002	R. Aaij *et al.*	(LHCb Collab.)	REFID=57636
PDG	04	PL B592 1	S. Eidelman *et al.*	(PDG Collab.)	REFID=49653
ASTON	93	PL B308 186	D. Aston *et al.*	(SLAC, NAGO, CINC, INUS)	REFID=43597
DAUM	81C	NP B187 1	C. Daum *et al.*	(AMST, CERN, CRAC, MPIM+)	REFID=22548

NODE=M088

$K(1830)$

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

OMITTED FROM SUMMARY TABLE

Seen in partial-wave analysis of $K\phi$ system. Needs confirmation. NODE=M088

$K(1830)$ MASS

NODE=M088M

	VALUE (MeV)	EVTS	DOCUMENT ID		TECN	CHG	COMMENT	NODE=M088M
YOUR DATA	**$1874 \pm 43^{+59}_{-115}$**	4289	[1] AAIJ	17C	LHCB		$B^+ \to J/\psi\phi K^+$	
	• • • We do not use the following data for averages, fits, limits, etc. • • •							
	~ 1830		ARMSTRONG	83	OMEG	–	18.5 $K^- p \to 3K p$	
YOUR NOTE	[1] From an amplitude analysis of the decay $B^+ \to J/\psi\phi K^+$ with a significance of 3.5 σ.							NODE=M088M;LINKAGE=A

$K(1830)$ WIDTH

NODE=M088W

	VALUE (MeV)	EVTS	DOCUMENT ID		TECN	CHG	COMMENT	NODE=M088W
YOUR DATA	**$168 \pm 90^{+280}_{-104}$**	4289	[2] AAIJ	17C	LHCB		$B^+ \to J/\psi\phi K^+$	
	• • • We do not use the following data for averages, fits, limits, etc. • • •							
	~ 250		ARMSTRONG	83	OMEG	–	18.5 $K^- p \to 3K p$	
YOUR NOTE	[2] From an amplitude analysis of the decay $B^+ \to J/\psi\phi K^+$ with a significance of 3.5 σ.							NODE=M088W;LINKAGE=A

$K(1830)$ REFERENCES

NODE=M088

YOUR PAPER	AAIJ	17C	PRL 118 022003	R. Aaij *et al.*	(LHCb Collab.)	REFID=57657
	Also		PR D95 012002	R. Aaij *et al.*	(LHCb Collab.)	REFID=57636
	ARMSTRONG	83	NP B221 1	T.A. Armstrong *et al.*	(BARI, BIRM, CERN+) JP	REFID=22801

NODE=M104

$K_2^*(1980)$

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

OMITTED FROM SUMMARY TABLE

Needs confirmation.

NODE=M104

$K_2^*(1980)$ MASS

NODE=M104M

NODE=M104M

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
1974±26 OUR AVERAGE						
YOUR DATA $2073 \pm 94^{+245}_{-240}$	4289	[1] AAIJ	17C	LHCB		$B^+ \to J/\psi\phi K^+$
$1973 \pm 8 \pm 25$		ASTON	87	LASS	0	11 $K^- p \to \overline{K}^0 \pi^+ \pi^- n$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
2020 ± 20		TIKHOMIROV	03	SPEC		40.0 π^- C $\to K_S^0 K_S^0 K_L^0$ X
1978 ± 40	241	BIRD	89	LASS	–	11 $K^- p \to \overline{K}^0 \pi^- p$

YOUR NOTE [1] From an amplitude analysis of the decay $B^+ \to J/\psi\phi K^+$ with a significance of 5.4 σ.

NODE=M104M;LINKAGE=B

$K_2^*(1980)$ WIDTH

NODE=M104W

NODE=M104W

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
376± 70 OUR AVERAGE						
YOUR DATA $678 \pm 311^{+1153}_{-559}$	4289	[2] AAIJ	17C	LHCB		$B^+ \to J/\psi\phi K^+$
$373 \pm 33 \pm 60$		ASTON	87	LASS	0	11 $K^- p \to \overline{K}^0 \pi^+ \pi^- n$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
180 ± 70		TIKHOMIROV	03	SPEC		40.0 π^- C $\to K_S^0 K_S^0 K_L^0$ X
398 ± 47	241	BIRD	89	LASS	–	11 $K^- p \to \overline{K}^0 \pi^- p$

YOUR NOTE [2] From an amplitude analysis of the decay $B^+ \to J/\psi\phi K^+$ with a significance of 5.4 σ.

NODE=M104W;LINKAGE=B

$K_2^*(1980)$ BRANCHING RATIOS

NODE=M104220

$\Gamma(K\phi)/\Gamma_{total}$ Γ_4/Γ

NODE=M104R00

NODE=M104R00

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
YOUR DATA **seen**	4289	[3] AAIJ	17C	LHCB	$B^+ \to J/\psi\phi K^+$

YOUR NOTE [3] From an amplitude analysis of the decay $B^+ \to J/\psi\phi K^+$ with a significance of 5.4 σ.

NODE=M104R00;LINKAGE=A

$K_2^*(1980)$ REFERENCES

NODE=M104

YOUR PAPER	AAIJ	17C	PRL 118 022003	R. Aaij *et al.*	(LHCb Collab.)	REFID=57657
	Also		PR D95 012002	R. Aaij *et al.*	(LHCb Collab.)	REFID=57636
	TIKHOMIROV	03	PAN 66 828 Translated from YAF 66 860.	G.D. Tikhomirov *et al.*		REFID=49423
	BIRD	89	SLAC-332	P.F. Bird	(SLAC)	REFID=41002
	ASTON	87	NP B292 693	D. Aston *et al.*	(SLAC, NAGO, CINC, INUS)	REFID=40234

$c\bar{c}$ MESONS

NODE=MXXX025

NODE=M193

$X(4140)$

$I^G(J^{PC}) = 0^+(1^{++})$

Seen by AALTONEN 09AH, ABAZOV 14A, CHATRCHYAN 14M, AAIJ 17C in $B^+ \to X K^+$, $X \to J/\psi\phi$, and by ABAZOV 15M separately in both prompt (4.7 σ) and non-prompt (5.6 σ) production in $p\bar{p} \to J/\psi\phi +$ anything. Not seen by SHEN 10 in $\gamma\gamma \to J/\psi\phi$ and ABLIKIM 15 in $e^+e^- \to \gamma J/\psi\phi$ at $\sqrt{s} = 4.23$, 4.26, 4.36 GeV.

NODE=M193

X(4140) MASS

NODE=M193M

NODE=M193M

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
4146.8±2.5 OUR AVERAGE		Error includes scale factor of 1.1.			
YOUR DATA $4146.5\pm4.5^{+4.6}_{-2.8}$	4289	[1] AAIJ	17C	LHCB	$B^+ \to J/\psi\phi K^+$
$4152.5\pm1.7^{+6.2}_{-5.4}$	616	[2] ABAZOV	15M	D0	$p\overline{p} \to J/\psi\phi +$ anything
$4159.0\pm4.3\pm6.6$	52	[3] ABAZOV	14A	D0	$B^+ \to J/\psi\phi K^+$
$4148.0\pm2.4\pm6.3$	0.3k	[4] CHATRCHYAN	14M	CMS	$B^+ \to J/\psi\phi K^+$
$4143.0\pm2.9\pm1.2$	14	[5] AALTONEN	09AH	CDF	$B^+ \to J/\psi\phi K^+$

YOUR NOTE

[1] From an amplitude analysis of the decay $B^+ \to J/\psi\phi K^+$ with a significance of 8.4 σ. NODE=M193M;LINKAGE=D
[2] Statistical significance of more than 6 σ. NODE=M193M;LINKAGE=C
[3] Statistical significance of 3.1 σ. NODE=M193M;LINKAGE=A
[4] From a fit assuming an S-wave relativistic Breit-Wigner shape above a three-body phase-space non-resonant component with statistical significance of more than 5 σ. NODE=M193M;LINKAGE=B
[5] Statistical significance of 3.8 σ. NODE=M193M;LINKAGE=AA

X(4140) WIDTH

NODE=M193W

NODE=M193W

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
19^{+8}_{-7} OUR AVERAGE		Error includes scale factor of 1.4. See the ideogram below.			
YOUR DATA $83 \pm 21^{+21}_{-14}$	4289	[1] AAIJ	17C	LHCB	$B^+ \to J/\psi\phi K^+$
$16.3\pm 5.6\pm11.4$	616	[2] ABAZOV	15M	D0	$p\overline{p} \to J/\psi\phi +$ anything
$20 \pm13^{+3}_{-8}$	52	[3] ABAZOV	14A	D0	$B^+ \to J/\psi\phi K^+$
$28 ^{+15}_{-11} \pm19$	0.3k	[4] CHATRCHYAN	14M	CMS	$B^+ \to J/\psi\phi K^+$
$11.7^{+8.3}_{-5.0}\pm 3.7$	14	[5] AALTONEN	09AH	CDF	$B^+ \to J/\psi\phi K^+$

YOUR NOTE

[1] From an amplitude analysis of the decay $B^+ \to J/\psi\phi K^+$ with a significance of 8.4 σ. NODE=M193W;LINKAGE=D
[2] Statistical significance of more than 6 σ. NODE=M193W;LINKAGE=C
[3] Statistical significance of 3.1 σ. NODE=M193W;LINKAGE=A
[4] From a fit assuming an S-wave relativistic Breit-Wigner shape above a three-body phase-space non-resonant component with statistical significance of more than 5 σ. NODE=M193W;LINKAGE=B
[5] Statistical significance of 3.8 σ. NODE=M193W;LINKAGE=AA

X(4140) BRANCHING RATIOS

NODE=M193225

$\Gamma(J/\psi\phi)/\Gamma_{total}$ **Γ_1/Γ**

NODE=M193R01
NODE=M193R01

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
YOUR DATA seen	4289	[1] AAIJ	17C	LHCB	$B^+ \to J/\psi\phi K^+$
seen	616	[2] ABAZOV	15M	D0	$p\overline{p} \to J/\psi\phi +$ anything
seen	52	[3] ABAZOV	14A	D0	$B^+ \to J/\psi\phi K^+$
seen	0.3k	[4] CHATRCHYAN	14M	CMS	$B^+ \to J/\psi\phi K^+$
seen	14	[5] AALTONEN	09AH	CDF	$B^+ \to J/\psi\phi K^+$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
not seen		[6] ABLIKIM	15	BES3	$e^+e^- \to \gamma\phi J/\psi$
not seen		[7] AAIJ	12AA	LHCB	$pp \to B^+X$ at 7 TeV

YOUR NOTE

[1] From an amplitude analysis of the decay $B^+ \to J/\psi\phi K^+$ with a significance of 8.4 σ. NODE=M193R01;LINKAGE=E
[2] Statistical significance of more than 6 σ. NODE=M193R01;LINKAGE=D
[3] ABAZOV 14A reports $B(B^+ \to X(4140)K^+ \to J/\psi\phi K^+)/B(B^+ \to J/\psi\phi K^+) = (19 \pm 7 \pm 4)\%$ with 3.1 σ signficance. NODE=M193R01;LINKAGE=A
[4] From a fit assuming an S-wave relativistic Breit-Wigner shape above a three-body phase-space non-resonant component with statistical significance of more than 5 σ. NODE=M193R01;LINKAGE=C
[5] Statistical significance of 3.8 σ. NODE=M193R01;LINKAGE=AA
[6] Reported $\sigma(e^+e^- \to \gamma X(4140))\cdot B(X(4140) \to J/\psi\phi) < 0.35$, 0.28, and 0.33 pb at 4.23, 4.26, and 4.36 GeV, respectively, at 90% CL. NODE=M193R01;LINKAGE=B
[7] Reported $B(B^+ \to X(4140)K^+)\cdot B(X(4140) \to J/\psi\phi)/B(B^+ \to J/\psi\phi K^+) < 0.07$ at 90% CL. NODE=M193R01;LINKAGE=AI

X(4140) REFERENCES

NODE=M193

YOUR PAPER	AAIJ	17C	PRL 118 022003	R. Aaij *et al.*	(LHCb Collab.) JP	REFID=57657
	Also		PR D95 012002	R. Aaij *et al.*	(LHCb Collab.)	REFID=57636
	ABAZOV	15M	PRL 115 232001	V.M. Abazov *et al.*	(D0 Collab.)	REFID=56957
	ABLIKIM	15	PR D91 032002	M. Ablikim *et al.*	(BES III Collab.)	REFID=56368
	ABAZOV	14A	PR D89 012004	V.M. Abazov *et al.*	(D0 Collab.)	REFID=55650
	CHATRCHYAN	14M	PL B734 261	S. Chatrchyan *et al.*	(CMS Collab.)	REFID=55753
	AAIJ	12AA	PR D85 091103	R. Aaij *et al.*	(LHCb Collab.)	REFID=54263
	SHEN	10	PRL 104 112004	C.P. Shen *et al.*	(BELLE Collab.)	REFID=53235
	AALTONEN	09AH	PRL 102 242002	T. Aaltonen *et al.*	(CDF Collab.)	REFID=52968

NODE=M233

X(4274)

$I^G(J^{PC}) = 0^+(1^{++})$

OMITTED FROM SUMMARY TABLE

Seen by AAIJ 17C in $B^+ \to X K^+$, $X \to J/\psi\phi$ using an amplitude analysis of $B^+ \to J/\psi\phi K^+$ with a significance (accounting for systematic uncertainties) of 6.0 σ.

NODE=M233

X(4274) MASS

NODE=M233M

	VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*	
							NODE=M233M
YOUR DATA	$\mathbf{4273.3 \pm 8.3^{+17.2}_{-\ 3.6}}$	4289	[1] AAIJ	17C	LHCB	$B^+ \to J/\psi\phi K^+$	
YOUR NOTE	[1] From an amplitude analysis of the decay $B^+ \to J/\psi\phi K^+$ with a significance of 6.0 σ.						NODE=M233M;LINKAGE=A

X(4274) WIDTH

NODE=M233W

	VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*	
							NODE=M233W
YOUR DATA	$\mathbf{56 \pm 11^{+\ 8}_{-11}}$	4289	[2] AAIJ	17C	LHCB	$B^+ \to J/\psi\phi K^+$	
YOUR NOTE	[2] From an amplitude analysis of the decay $B^+ \to J/\psi\phi K^+$ with a significance of 6.0 σ.						NODE=M233W;LINKAGE=A

X(4274) BRANCHING RATIOS

NODE=M233220

$\Gamma(J/\psi\phi)/\Gamma_{\text{total}}$ Γ_1/Γ

NODE=M233R01

	VALUE	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*	
							NODE=M233R01
YOUR DATA	**seen**	4289	[3] AAIJ	17C	LHCB	$B^+ \to J/\psi\phi K^+$	
YOUR NOTE	[3] From an amplitude analysis of the decay $B^+ \to J/\psi\phi K^+$ with a significance of 6.0 σ.						NODE=M233R01;LINKAGE=A

X(4274) REFERENCES

NODE=M233

YOUR PAPER	AAIJ	17C	PRL 118 022003	R. Aaij *et al.*	(LHCb Collab.) JP	REFID=57657
	Also		PR D95 012002	R. Aaij *et al.*	(LHCb Collab.)	REFID=57636

NODE=M234

X(4500)

$I^G(J^{PC}) = 0^+(0^{++})$

OMITTED FROM SUMMARY TABLE

Seen by AAIJ 17C in $B^+ \to X K^+$, $X \to J/\psi\phi$ using an amplitude analysis of $B^+ \to J/\psi\phi K^+$ with a significance (accounting for systematic uncertainties) of 6.1 σ.

NODE=M234

X(4500) MASS

NODE=M234M

	VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*	
							NODE=M234M
YOUR DATA	$\mathbf{4506 \pm 11^{+12}_{-15}}$	4289	[1] AAIJ	17C	LHCB	$B^+ \to J/\psi\phi K^+$	
YOUR NOTE	[1] From an amplitude analysis of the decay $B^+ \to J/\psi\phi K^+$ with a significance of 6.1 σ.						NODE=M234M;LINKAGE=A

X(4500) WIDTH

NODE=M234W

	VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*	
							NODE=M234W
YOUR DATA	$\mathbf{92 \pm 21^{+21}_{-20}}$	4289	[2] AAIJ	17C	LHCB	$B^+ \to J/\psi\phi K^+$	
YOUR NOTE	[2] From an amplitude analysis of the decay $B^+ \to J/\psi\phi K^+$ with a significance of 6.1 σ.						NODE=M234W;LINKAGE=A

X(4500) BRANCHING RATIOS

NODE=M234220

$\Gamma(J/\psi\phi)/\Gamma_{total}$ Γ_1/Γ

NODE=M234R01
NODE=M234R01

	VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
YOUR DATA	seen	4289	[3] AAIJ	17C	LHCB	$B^+ \to J/\psi\phi K^+$
YOUR NOTE	[3] From an amplitude analysis of the decay $B^+ \to J/\psi\phi K^+$ with a significance of 6.1 σ.					NODE=M234R01;LINKAGE=A

X(4500) REFERENCES

NODE=M234

YOUR PAPER	AAIJ 17C	PRL 118 022003	R. Aaij *et al.*	(LHCb Collab.) JP	REFID=57657
	Also	PR D95 012002	R. Aaij *et al.*	(LHCb Collab.)	REFID=57636

NODE=M235

X(4700)

$I^G(J^{PC}) = 0^+(0^{++})$

OMITTED FROM SUMMARY TABLE

Seen by AAIJ 17C in $B^+ \to X K^+$, $X \to J/\psi\phi$ using an amplitude analysis of $B^+ \to J/\psi\phi K^+$ with a significance (accounting for systematic uncertainties) of 5.6 σ.

NODE=M235

X(4700) MASS

NODE=M235M

NODE=M235M

	VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
YOUR DATA	$4704 \pm 10^{+14}_{-24}$	4289	[1] AAIJ	17C	LHCB	$B^+ \to J/\psi\phi K^+$
YOUR NOTE	[1] From an amplitude analysis of the decay $B^+ \to J/\psi\phi K^+$ with a significance of 5.6 σ.					NODE=M235M;LINKAGE=A

X(4700) WIDTH

NODE=M235W

NODE=M235W

	VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
YOUR DATA	$120 \pm 31^{+42}_{-33}$	4289	[2] AAIJ	17C	LHCB	$B^+ \to J/\psi\phi K^+$
YOUR NOTE	[2] From an amplitude analysis of the decay $B^+ \to J/\psi\phi K^+$ with a significance of 5.6 σ.					NODE=M235W;LINKAGE=A

X(4700) BRANCHING RATIOS

NODE=M235220

$\Gamma(J/\psi\phi)/\Gamma_{total}$ Γ_1/Γ

NODE=M235R01
NODE=M235R01

	VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
YOUR DATA	seen	4289	[3] AAIJ	17C	LHCB	$B^+ \to J/\psi\phi K^+$
YOUR NOTE	[3] From an amplitude analysis of the decay $B^+ \to J/\psi\phi K^+$ with a significance of 5.6 σ.					NODE=M235R01;LINKAGE=A

X(4700) REFERENCES

NODE=M235

YOUR PAPER	AAIJ 17C	PRL 118 022003	R. Aaij *et al.*	(LHCb Collab.) JP	REFID=57657
	Also	PR D95 012002	R. Aaij *et al.*	(LHCb Collab.)	REFID=57636