DECAY FORM FACTORS FOR $K^{\pm} \rightarrow \pi^+ \pi^- e^{\pm} \nu_e$

Given in ROSSELET 77, BEIER 73, and BASILE 71C.

DECAY FORM FACTOR FOR $K^{\pm} \rightarrow \pi^0 \pi^0 e^{\pm} \nu$

Given in BOLOTOV 86B and BARMIN 88B.

$K^{\pm} \rightarrow \ell^{\pm} \nu \gamma$ FORM FACTORS

For definitions of the axial-vector F_A and vector F_V form factor, see the "Note on $\pi^{\pm} \rightarrow \ell^{\pm} \nu \gamma$ and $K^{\pm} \rightarrow \ell^{\pm} \nu \gamma$ Form Factors" in the $\pi^{\pm}$ section. In the kaon literature, often different definitions $a_K = F_A/m_K$ and $v_K = F_V/m_K$ are used.

$F_A + F_V$, SUM OF AXIAL-VECTOR AND VECTOR FORM FACTOR FOR $K \rightarrow e \nu_e \gamma$

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.148±0.010 OUR AVERAGE					
0.147±0.011	51	[101] HEINTZE	79	SPEC	$K \rightarrow e \nu \gamma$
$0.150^{+0.018}_{-0.023}$	56	[102] HEARD	75	SPEC	$K \rightarrow e \nu \gamma$

[101] HEINTZE 79 quotes absolute value of $\lvert F_A + F_V \rvert \sin\theta_c$. We use $\sin\theta_c = V_{us} = 0.2205$.

[102] HEARD 75 quotes absolute value of $\lvert F_A + F_V \rvert \sin\theta_c$. We use $\sin\theta_c = V_{us} = 0.2205$.

$F_A + F_V$, SUM OF AXIAL-VECTOR AND VECTOR FORM FACTOR FOR $K \rightarrow \mu \nu_\mu \gamma$

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
< 0.23	90	[103] AKIBA	85	SPEC	$K \rightarrow \mu \nu \gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
−1.2 to 1.1	90	DEMIDOV	90	XEBC	$K \rightarrow \mu \nu \gamma$

[103] AKIBA 85 quotes absolute value.

$F_A - F_V$, DIFFERENCE OF AXIAL-VECTOR AND VECTOR FORM FACTOR FOR $K \rightarrow e \nu_e \gamma$

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
<0.49	90	[104] HEINTZE	79	SPEC	$K \rightarrow e \nu \gamma$

[104] HEINTZE 79 quotes $\lvert F_A - F_V \rvert < \sqrt{11}\, \lvert F_A + F_V \rvert$.

$F_A - F_V$, DIFFERENCE OF AXIAL-VECTOR AND VECTOR FORM FACTOR FOR $K \rightarrow \mu \nu_\mu \gamma$

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
−2.2 to 0.3 OUR EVALUATION					
−2.2 to 0.6	90	DEMIDOV	90	XEBC	$K \rightarrow \mu \nu \gamma$
−2.5 to 0.3	90	AKIBA	85	SPEC	$K \rightarrow \mu \nu \gamma$

$K^{\pm}$ REFERENCES

ATIYA 93 PRL 70 2521 +Chiang, Frank, Haggerty, Ito+ (BNL 787 Collab.)
Also 93C PRL 71 305 (erratum) Atiya, Chiang, Frank, Haggerty, Ito+ (BNL 787 Collab.)
ATIYA 93B PR D48 R1 +Chiang, Frank, Haggerty, Ito+ (BNL 787 Collab.)
ALLIEGRO 92 PRL 68 278 +Campagnari+ (BNL, FNAL, PSI, WASH, YALE)
BARMIN 92 SJNP 55 547 +Barylov, Chernukha, Davidenko+ (ITEP)
Translated from YAF 55 976.
IMAZATO 92 PRL 69 877 +Kawashima, Tanaka+ (KEK, INUS, TOKY, TOKMS)
IVANOV 92 THESIS (PNPI)
LITTENBERG 92 PRL 68 443 +Shrock (BNL, STON)
USHER 92 PR D45 3961 +Fero, Gee, Graf, Mandelkern, Schultz, Shultz (UCI)
AKIMENKO 91 PL B259 225 +Beloussov+ (SERP, JINR, TBIL, CMNS, SOFU, KOSI)
BARMIN 91 SJNP 53 606 +Barylov, Davidenko, Demidov+ (ITEP)
Translated from YAF 53 981.
DENISOV 91 JETPL 54 558 +Zhelamkov, Ivanov, Lapina, Levchenko, Malakhov+ (PNPI)
Translated from ZETFP 54 557.
Also 92 THESIS Ivanov (PNPI)
ATIYA 90 PRL 64 21 +Chiang, Frank, Haggerty, Ito, Kycia+ (BNL 787 Collab.)
ATIYA 90B PRL 65 1188 +Chiang, Frank, Haggerty, Ito, Kycia+ (BNL 787 Collab.)
DEMIDOV 90 SJNP 52 1006 +Dobrokhotov, Lyublev, Nikitenko+ (ITEP)
Translated from YAF 52 1595.
LEE 90 PRL 64 165 +Alliegro, Campagnari+ (BNL, FNAL, VILL, WASH, YALE)
ATIYA 89 PRL 63 2177 +Chiang, Frank, Haggerty, Ito, Kycia+ (BNL 787 Collab.)
BARMIN 89 SJNP 50 421 +Barylov, Davidenko, Demidov, Dolgolenko+ (ITEP)
Translated from YAF 50 679.
BARMIN 88 SJNP 47 643 +Barylov, Davidenko, Demidov, Dolgolenko+ (ITEP)
Translated from YAF 47 1011.
BARMIN 88B SJNP 48 1032 +Barylov, Davidenko, Demidov, Dolgolenko+ (ITEP)
Translated from YAF 48 1719.
BOLOTOV 88 JETPL 47 7 +Gninenko, Dzhilkibaev, Isakov, Klubakov+ (ASCI)
Translated from ZETFP 47 8.
CAMPAGNARI 88 PRL 61 2062 +Alliegro, Chaloupka+ (BNL, FNAL, PSI, WASH, YALE)
GALL 88 PRL 60 186 +Austin+ (BOST, MIT, WILL, CIT, CMU, WYOM)
BARMIN 87 SJNP 45 62 +Barylov, Davidenko, Demidov+ (ITEP)
Translated from YAF 45 97.
BOLOTOV 87 SJNP 45 1023 +Gninenko, Dzhilkibaev, Isakov, Klubakov+ (INRM)
Translated from YAF 45 1652.
BOLOTOV 86 SJNP 44 73 +Gninenko, Dzhilkibaev, Isakov+ (INRM)
Translated from YAF 44 117.
BOLOTOV 86B SJNP 44 68 +Gninenko, Dzhilkibaev, Isakov+ (INRM)
Translated from YAF 44 108.
YAMANAKA 86 PR D34 85 +Hayano, Taniguchi, Ishikawa+ (KEK, TOKY)
Also 84 PRL 52 329 Hayano, Yamanaka, Taniguchi+ (TOKY, KEK)
AKIBA 85 PR D32 2911 +Ishikawa, Iwasaki+ (TOKY, TINT, TSUK, KEK)
BOLOTOV 85 JETPL 42 481 +Gninenko, Dzhilkibaev, Isakov+ (INRM)
Translated from ZETFP 42 390.
BLATT 83 PR D27 1056 +Adair, Black, Campbell+ (YALE, BNL)
ASANO 82 PL 113B 195 +Kikutani, Kurokawa, Miyachi+(KEK, TOKY, INUS, OSAK)
COOPER 82 PL 112B 97 +Guy, Michette, Tyndel, Venus (RL)
PDG 82 PL 111B Roos, Porter, Aguilar-Benitez+ (HELS, CIT, CERN)
PDG 82B PL 111B 70 Roos, Porter, Aguilar-Benitez+ (HELS, CIT, CERN)
ASANO 81B PL 107B 159 +Kikutani, Kurokawa, Miyachi+(KEK, TOKY, INUS, OSAK)
CAMPBELL 81 PRL 47 1032 +Black, Blatt, Kasha, Schmidt+ (YALE, BNL)
Also 83 PR D27 1056 Blatt, Adair, Black, Campbell+ (YALE, BNL)
LUM 81 PR D23 2522 +Wiegand, Kessler, Deslattes, Seki+ (LBL, NBS+)
LYONS 81 ZPHY C10 215 +Albajar, Myatt (OXF)
MORSE 80 PR D21 1750 +Leipuner, Larsen, Schmidt, Blatt+ (BNL, YALE)
WHITMAN 80 PR D21 652 +Abrams, Carroll, Kycia, Li+ (ILLC, BNL, ILL)
BARKOV 79 NP B148 53 +Vasserman, Zolotorev, Krupin+ (NOVO, KIAE)
HEINTZE 79 NP B149 365 +Heinzelmann, Igo-Kemenes+ (HEIDP, CERN)
ABRAMS 77 PR D15 22 +Carroll, Kycia, Li, Michael, Mockett+ (BNL)
DEVAUX 77 NP B126 11 +Bloch, Diamant-Berger, Maillard+ (SACL, GEVA)
HEINTZE 77 PL 70B 482 +Heinzelmann, Igo-Kemenes+ (HEIDP, CERN)
ROSSELET 77 PR D15 574 +Extermann, Fischer, Guisan+ (GEVA, SACL)
BERTRAND 76 NP B114 387 +Sacton+ (BRUX, KIDR, DUUC, LOUC, WARS)
BLOCH 76 PL 60B 393 +Bunce, Devaux, Diamant-Berger+ (GEVA, SACL)
BRAUN 76B LNC 17 521 +Martyn, Erriquez+ (AACH3, BARI, BELG, CERN)
DIAMANT-... 76 PL 62B 485 Diamant-Berger, Bloch, Devaux+ (SACL, GEVA)
HEINTZE 76 PL 60B 302 +Heinzelmann, Igo-Kemenes, Mundhenke+ (HEIDP)
SMITH 76 NP B109 173 +Booth, Renshall, Jones+ (GLAS, LIVP, OXF, RHEL)
WEISSENBE... 76 NP B115 55 Weissenberg, Egorov, Minervina+ (ITEP, LEBD)
BLOCH 75 PL 56B 201 +Brehin, Bunce, Devaux+ (SACL, GEVA)
BRAUN 75 NP B89 210 +Cornelssen+ (AACH3, BARI, BRUX, CERN)
CHENG 75 NP A254 381 +Asano, Chen, Dugan, Hu, Wu+ (COLU, YALE)
HEARD 75 PL 55B 324 +Heintze, Heinzelmann+ (CERN, HEIDH)
HEARD 75B PL 55B 327 +Heintze, Heinzelmann+ (CERN, HEIDH)
SHEAFF 75 PR D12 2570 (WISC)
SMITH 75 NP B91 45 +Booth, Renshall, Jones+ (GLAS, LIVP, OXF, RHEL)
ARNOLD 74 PR D9 1221 +Roe, Sinclair (MICH)
BRAUN 74 PL 51B 393 +Cornelssen, Martyn+ (AACH3, BARI, BRUX, CERN)
CENCE 74 PR D10 776 +Harris, Jones, Morgado+ (HAWA, LBL, WISC)
Also 73 Thesis unpub. Clarke (WISC)
KUNSELMAN 74 PR C9 2469 (WYOM)
MERLAN 74 PR D9 107 +Kasha, Wanderer, Adair+ (YALE, BNL, LASL)
WEISSENBE... 74 PL 48B 474 Weissenberg, Egorov, Minervina+ (ITEP, LEBD)
ABRAMS 73B PRL 30 500 +Carroll, Kycia, Li, Menes, Michael+ (BNL)
BACKENSTO... 73 PL 43B 431 Backenstoss+ (CERN, KARLK, KARLE, HEID, STOH)
BEIER 73 PRL 30 399 +Buchholz, Mann, Parker, Roberts (PENN)
BRAUN 73B PL 47B 185 +Cornelssen (AACH3, BARI, BRUX, CERN)
Also 75 NP B89 210 Braun, Cornelssen+ (AACH3, BARI, BRUX, CERN)
BRAUN 73C PL 47B 182 +Cornelssen (AACH3, BARI, BRUX, CERN)
Also 75 NP B89 210 Braun, Cornelssen+ (AACH3, BARI, BRUX, CERN)
CABLE 73 PR D8 3807 +Hildebrand, Pang, Stiening (EFI, LBL)
LJUNG 73 PR D8 1307 +Cline (WISC)
Also 72 PRL 28 523 Ljung (WISC)
Also 72 PRL 28 1287 Cline, Ljung (WISC)
Also 69 PRL 23 326 Camerini, Ljung, Sheaff, Cline (WISC)
LUCAS 73 PR D8 719 +Taft, Willis (YALE)
LUCAS 73B PR D8 727 +Taft, Willis (YALE)
PANG 73 PR D8 1989 +Hildebrand, Cable, Stiening (EFI, ARIZ, LBL)
Also 72 PL 40B 699 Cable, Hildebrand, Pang, Stiening (EFI, LBL)
SMITH 73 NP B60 411 +Booth, Renshall, Jones+ (GLAS, LIVP, OXF, RHEL)
ABRAMS 72 PRL 29 1118 +Carroll, Kycia, Li, Menes, Michael+ (BNL)
ANKENBRA... 72 PRL 28 1472 Ankenbrandt, Larsen+ (BNL, LASL, FNAL, YALE)
AUBERT 72 NC 12A 509 +Heusse, Pascaud, Vialle+ (ORSAY, BRUX, EPOL)
BEIER 72 PRL 29 678 +Buchholz, Mann, Parker (PENN)
CHIANG 72 PR D6 1254 +Rosen, Shapiro, Handler, Olsen+ (ROCH, WISC)
CLARK 72 PRL 29 1274 +Cork, Elioff, Kerth, McReynolds, Newton+ (LBL)
EDWARDS 72 PR D5 2720 +Beier, Bertram, Herzo, Koester+ (ILL)
FORD 72 PL 38B 335 +Piroue, Remmel, Smith, Souder (PRIN)
HOFFMASTER 72 NP B36 1 +Koller, Taylor+ (STEV, SETO, LEHI)
BASILE 71C PL 36B 619 +Brehin, Diamant-Berger, Kunz+ (SACL, GEVA)
BOURQUIN 71 PL 36B 615 +Boymond, Extermann, Marasco+ (GEVA, SACL)
GINSBERG 71 PR D4 2893 (MIT)
HAIDT 71 PR D3 10 (AACH, BARI, CERN, EPOL, NIJM+)
Also 69 PL 29B 691 Haidt+ (AACH, BARI, CERN, EPOL, NIJM, ORSAY+)
KLEMS 71 PR D4 66 +Hildebrand, Stiening (CHIC, LRL)
Also 70 PRL 24 1086 Klems, Hildebrand, Stiening (LRL, CHIC)
Also 70B PRL 25 473 Klems, Hildebrand, Stiening (LRL, CHIC)
OTT 71 PR D3 52 +Pritchard (LOQM)
ROMANO 71 PL 36B 525 +Renton, Aubert, Burban-Lutz (BARI, CERN, ORSAY)
SCHWEINB... 71 PL 36B 246 Schweinberger (AACH, BELG, CERN, NIJM+)
STEINER 71 PL 36B 521 (AACH, BARI, CERN, EPOL, ORSAY, NIJM, PADO+)
BARDIN 70 PL 32B 121 +Bilenky, Pontecorvo (JINR)
BECHERRAWY 70 PR D1 1452 (ROCH)
BOTTERILL 70 PL 31B 325 +Brown, Clegg, Corbett, Culligan+ (OXF)
FORD 70 PRL 25 1370 +Piroue, Remmel, Smith, Souder (PRIN)
GAILLARD 70 CERN 70-14 +Chounet (CERN, ORSAY)
GINSBERG 70 PR D1 229 (HAIF)
GRAUMAN 70 PR D1 1277 +Koller, Taylor, Pandoulas+ (STEV, SETO, LEHI)
Also 69 PRL 23 737 Grauman, Koller, Taylor+ (STEV, SETO, LEHI)
MALTSEV 70 SJNP 10 678 +Pestova, Solodovnikova, Fadeev+ (JINR)
Translated from YAF 10 1195.
PANDOULAS 70 PR D2 1205 +Taylor, Koller, Grauman+ (STEV, SETO)
CUTTS 69 PR 184 1380 +Stiening, Wiegand, Deutsch (LRL, MIT)
Also 68 PRL 20 955 Cutts, Stiening, Wiegand, Deutsch (LRL, MIT)
DAVISON 69 PR 180 1333 +Bacastow, Barkas, Evans, Fung, Porter+ (UCR)
ELY 69 PR 180 1319 +Gidal, Hagopian, Kalmus+ (LOUC, WISC, LRL)
EMMERSON 69 PRL 23 393 +Quirk (OXF)
HERZO 69 PR 186 1403 +Banner, Beier, Bertram, Edwards+ (ILL)
KIJEWSKI 69 UCRL 18433 Thesis (LBL)
LOBKOWICZ 69 PR 185 1676 +Melissinos, Nagashima, Tewksbury+ (ROCH, BNL)
Also 66 PRL 17 548 Lobkowicz, Melissinos, Nagashima+ (ROCH, BNL)
MACEK 69 PRL 22 32 +Mann, McFarlane, Roberts+ (PENN, TEMP)
MAST 69 PR 183 1200 +Gershwin, Alston-Garnjost, Bangerter+ (LRL)
SELLERI 69 NC 60A 291
ZELLER 69 PR 182 1420 +Haddock, Helland, Pahl+ (UCLA, LRL)
BETTELS 68 NC 56A 1106 (AACH, BARI, BERG, CERN, EPOL, NIJM, ORSAY+)
Also 71 PR D3 10 Haidt (AACH, BARI, CERN, EPOL, NIJM+)
BOTTERILL 68B PRL 21 766 +Brown, Clegg, Corbett+ (OXF)
BOTTERILL 68C PR 174 1661 +Brown, Clegg, Corbett+ (OXF)
BUTLER 68 UCRL 18420 +Bland, Goldhaber, Goldhaber, Hirata+ (LRL)
CHANG 68 PRL 20 510 +Yodh, Ehrlich, Plano+ (UMD, RUTG)
CHEN 68 PRL 20 73 +Cutts, Kijewski, Stiening+ (LRL, MIT)
EICHTEN 68 PL 27B 586 (AACH, BARI, CERN, EPOL, ORSAY, PADO, VALE)
EISLER 68 PR 169 1090 +Fung, Marateck, Meyer, Plano (RUTG)
ESCHSTRUTH 68 PR 165 1487 +Franklin, Hughes+ (PRIN, PENN)
GARLAND 68 PR 167 1225 +Tsipis, Devons, Rosen+ (COLU, RUTG, WISC)
MOSCOSO 68 Thesis (ORSAY)
AUERBACH 67 PR 155 1505 +Dobbs, Mann+ (PENN, PRIN)
Also 74 PR D9 3216 Auerbach
Erratum.
BELLOTTI 67 Heidelberg Conf. +Pullia (MILA)
BELLOTTI 67B NC 52A 1287 +Fiorini, Pullia (MILA)
Also 66B PL 20 690 Bellotti, Fiorini, Pullia+ (MILA)
BISI 67 PL 25B 572 +Cester, Chiesa, Vigone (TORI)
BOTTERILL 67 PRL 19 982 +Brown, Corbett, Culligan+ (OXF)
Also 68 PR 171 1402 Botterill, Brown, Clegg, Corbett+ (OXF)
BOWEN 67B PR 154 1314 +Mann, McFarlane, Hughes+ (PPA)
CLINE 67B Herceg Novi Tbl. 4
Proc. International School on Elementary Particle Physics.
FLETCHER 67 PRL 19 98 +Beier, Edwards+ (ILL)
FORD 67 PRL 18 1214 +Lemonick, Nauenberg, Piroue (PRIN)
GINSBERG 67 PR 162 1570 (MASB)
IMLAY 67 PR 160 1203 +Eschstruth, Franklin+ (PRIN)