补充材料

探测器高能伽马效率刻度用放射性核素 ^{56}Co 的衰变数据

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^{56}Co衰变半衰期和γ相对强度实验测量数据表

表A1和表A2分别列出了^{56}Co半衰期实验测量数据与γ相对强度实验测量数据, 同时给出了一些说明与最终的评价结果。

完整ENSDF与ENDF格式数据可以在https://doi.org/10.57760/sciencedb.j00213.00169中访问获取。

表 A1 ^{56}Co 半衰期测量及推荐数据

Table A1. Half-life measurements and recommended data for ^{56}Co.

参考文献	$T_{1/2}$/d	备注
Burgus *et al*. (1954)[1]	77.2 (8)	正比计数器
Wright *et al*.(1957)[2]	77.3 (3)	电离室
Emery *et al*. (1972)[3]	78.76 (12)	统计检验出界，忽略
Cressy (1974)[4]	78.4 (5)	统计检验出界，忽略
Anderson (1977)[5]	77.12 (10)	
Lagoutine *et al*. (1978)[6]	77.12 (7)	不确定性为 3σ = 0.20 d
Alburger *et al*. (1989)[7]	77.30 (9)	Ge(Li) 探测器
Lesko *et al*. (1989)[8]	77.08 (8)	Ge(Li) 探测器
Schrader (1989)[9]	77.28 (4)	4πγ电离室
Alburger *et al*. (1990)[10]	77.29 (3)	Ge(Li) 探测器
Funck *et al*. (1992)[11]	77.210 (28)	4πγ电离室
Funck *et al*. (1992)[11]	77.290 (40)	4πγ电离室
霍俊德等(2011)[12]	77.236 (26)	ENSDF 评价值
	77.219(87)	算术平均值
	77.245 (28)	加权平均值
	77.245 (28)	本文推荐

表 A2 ^{56}Co β 衰变γ射线相对强度测量数据及推荐数据

Table A2. Measured and recommended relative intensities of γ-rays from β decay of ^{56}Co.

Ref. / E_γ/keV	**263.4**	**411.1**	**486.5**	**655.0**	**674.6**	**733.5**	**787.7**	**846.8**	**852.7**	**896.5**
Pettersson(1965)[13]							1.04* (21)	100		
Dolan(1966)[14]								100		
Huguet(1966)[15]								100		
Schöneberg(1966)[16]								100		
Auble(1967)[17]						0.10* (5)	0.4 (2)	100		
Barker(1967)[18]								100		
Sher(1968)[19]						0.13 (6)	0.2 (1)	100		
Chasman(1967)[20]							0.36 (5) (8)	100 (15) (0)		
Armitage(1969)[21]								100		
Aubin(1969)[22]								100		
Scott(1969)[23]							0.37 (4)	100		0.14* (4)
Phelps(1970)[24]	0.03 (1)		0.066 (6)			0.21 (4)	0.31 (6)	100		0.06 (1)
Camp(1971)[25]	0.021 (4)	0.025 (5)	0.041 (7)			0.193 (3)	0.308 (8)	100		0.071 (4)
Gehrke(1971)[26]								100		
Genest(1971)[27]	0.05* (1)	0.024 (7)	0.050 (12)		0.03 (1)	0.18 (3)	0.28 (4)	100	0.04 (1)	0.08 (2)
Singh(1971)[28]							0.21 (6)	100		
Peterman(1972)[29]#								100.0 (60) (0)		
								100.0 (56) (0)		
								100.0 (57) (0)		
Boydell(1974)[30]								100		
Hofmann(1974)[31]	0.020 (6)	0.025 (9)	0.07 (2)		0.03 (1)	0.165 (8)	0.29 (3)	100		0.062 (6)
Katou(1975)[32]						0.219 (7)	0.311 (12)	100		0.089 (11)
Gehrke(1977)[33]								100 (1) (0)		
Hautala(1978)[34]						0.143 (13)	0.34 (3)	100		0.077 (10)
Stewart(1980)[35]	0.022 (4)	0.031* (4)	0.069 (7)	0.038 (8)	0.038 (7)	0.195 (14)	0.320 (7)	100		0.063 (6)
Sharma(1980)[36]	0.031[c] (9)	0.026 (8)	0.065 (11)		0.045 (20)	0.166 (12)	0.28 (1)	100		0.089 (13)
Yoshizawa(1980)[37]			0.061 (10)			0.193 (12)	0.305 (13)	100.0 (3) (0)		0.095 (18)
						(12)	(13)			(18)
Grütter(1982)[38]								100		
Alburger(1989)[39]								100	0.050 (3)	
Meyer(1990)[40]	0.022 (4)	0.025 (5)	0.055 (5)			0.20 (1)	0.31 (1)	100		0.070 (5)
Schötzig(1992)[41]						0.190 (7) (7)	0.315 (10)	100.00 (26)		0.086 (20)
							(10)	(0)		(20)
Raman(2000)[42]s								100		
Molnár(2002)[43]s								100.0 (2) (0)		
YuWeixiang(2009)[44]s								100.0(5)		
Dryak(2008)[45]	0.022 (3)	0.021 (4)	0.050 (6)	0.045 (5)	0.026 (5)	0.192 (7)	0.312 (5)	100	0.049 (6)	0.075 (4)
Evaluated	**0.023 (2)**	**0.0254 (25)**	**0.057 (5)**	**0.043 (5)**	**0.031 (5)**	**0.191 (4)**	**0.310 (5)**	**100**	**0.049 (3)**	**0.071 (4)**

表 A2 (续) ^{56}Co β 衰变γ射线相对强度测量数据及推荐数据

Table A2. (continued). Measured and recommended relative intensities of γ-rays from β decay of ^{56}Co.

Ref. / E_γ/keV	977.4	996.9	1037.8	1088.9	1140.4	1159.9	1175.1	1198.9	1238.3	1271.9
Pettersson(1965)[13]	1.73 (35)		14.1 (15)				2.1 (6)		66.8 (40)	
Dolan(1966)[14]			12.4 (5)						71.2 (26)	
Huguet(1966)[15]			14.5 (15)				2.8* (5)		70.5 (70)	
Schöneberg(1966)[16]			14.0 (20)				1.4* (2)		66.3 (60)	
Auble(1967)[17]	1.36 (36)		12.8 (9)				2.4 (2)		69.5 (35)	
Barker(1967)[18]	1.62 (10)		13.7 (8)				2.03 (14)		72.1 (50)	
Sher(1968)[19]	1.01* (30)		12.1 (8)				2.2 (1)		70.2 (25)	
Chasman(1967)[20]	1.50 (23) (32)		14.0 (21) (30)		0.170 (26) (36)		1.60* (24) (34)		64 (10) (14)	
Armitage(1969)[21]	1.1 (1)		9.6* (6)				1.9 (2)		69.6 (35)	
Aubin(1969)[22]			13.08 (35)				1.73 (13)		68.3 (14)	
Scott(1969)[23]					0.17 (3)					
Phelps(1970)[24]	1.35 (5)		14.0 (7)		0.24* (4)	0.11 (2)	2.25 (5)		68.5 (12)	
Camp(1971)[25]	1.448 (14)	0.112 (6)	14.24 (14)	0.048 (9)	0.142 (9)	0.100 (9)	2.300 (25)	0.050 (7)	67.64 (68)	0.019 (1)
Gehrke(1971)[26]			12.9 (5)				2.26 (23)		67.8 (15)	
Genest(1971)[27]	1.42 (14)	0.13 (3)	14.4 (9)	0.04 (1)	0.16 (3)	0.11 (2)	2.29 (22)	0.06 (2)	69.6 (35)	0.024 (7)
Singh(1971)[28]	1.21 (6)		12.44 (31)				2.11 (5)			
Peterman(1972)[29]#			13.45(190) (206)				1.99 (27) (30)		70.9 (77) (88)	
			13.03 (172) (187)				2.18 (34) (36)		68.2 (72) (81)	
			12.72 (153) (169)				1.93 (25) (27)		66.9 (75) (84)	
Boydell(1974)[30]			13.7 (6)				2.3 (1)		66.2 (10)	
Hofmann(1974)[31]	1.37 (4)	0.17 (5)		0.07 (2)	0.13 (2)	0.078 (7)	2.25 (11)	0.028 (9)		0.022 (3)
Katou(1975)[32]	1.386 (15)		13.922 (116)		0.107 (3)	0.095 (6)	2.180 (24)		66.37 (74)	
Gehrke(1977)[33]	1.426 (15) (21)		14.04 (14) (20)				2.28 (2) (3)		66.4 (7) (10)	
Hautala(1978)[34]	1.38 (4)	0.170 (14)	13.5 (2)	0.06 (2)	0.117 (13)	0.08 (1)	2.11 (10)	0.044 (8)	65.1 (4)	0.035* (4)
Stewart(1980)[35]	1.41 (2)	0.092 (14)	14.11 (19)	0.050 (7)	0.125 (6)	0.074 (8)	2.30 (32)	0.04 (1)	68.47 (87)	0.038* (6)
Sharma(1980)[36]	1.38 (3)	0.11 (1)	14.06 (28)	0.075 (9)	0.11 (1)	0.079 (9)	2.22 (5)	0.035 (10)	67.59 (131)	0.022 (8)
Yoshizawa(1980)[37]	1.435 (16) (16)	0.129 (14) (14)	14.16 (5) (7)	0.05 (3) (3)	0.131 (21) (21)	0.095 (14) (14)	2.241 (12) (14)	0.051 (9) (9)	66.06 (21) (29)	0.025 (8) (8)
Grütter(1982)[38]			13.85 (35)						65.8 (16)	
Alburger(1989)[39]										
Meyer(1990)[40]	1.440 (15)	0.112 (6)	14.0 (1)	0.05 (1)	0.15 (1)	0.10 (1)	2.28 (2)	0.05 (1)	67.6 (4)	0.020 (2)
Schötzig(1992)[41]	1.450 (15) (15)		14.18 (13) (13)		0.137 (5) (5)		2.289 (21) (21)		66.96 (60) (60)	0.024 (10) (10)
Raman(2000)[42]s			14.11 (22)				2.25 (4)		66.6 (10)	
Molnár(2002)[43]s	1.424 (6) (7)		14.07 (4) (5)				2.252 (9) (10)		66.20 (11) (17)	
Yu (2009)[44]s			14.15(8)				2.26(2)		66.26(26)	
Dryak(2008)[45]	1.420 (11)	0.110 (4)	14.08 (6)	0.06 (1)	0.131 (4)	0.101 (5)	2.255 (7)	0.053 (5)	66.59 (20)	0.019 (2)
Evaluated	**1.423 (7)**	**0.113 (4)**	**14.07 (5)r**	**0.054 (7)**	**0.133 (3)r**	**0.091 (5)**	**2.255 (7)r**	**0.047 (5)**	**66.45 (17)r**	**0.0195 (10)**

表 A2 (续) ^{56}Co β 衰变γ射线相对强度测量数据及推荐数据

Table A2. (continued). Measured and recommended relative intensities of γ-rays from β decay of ^{56}Co.

Ref. / E_γ/keV	1335.4	1360.2	1442.8	1462.3	1640.5	1771.3	1810.7	1963.7	2015.2	2034.8
Pettersson(1965)[13]		4.0(8)				16.2(14)		0.75(27)	4.1(12)*	9.2(17)
Dolan(1966)[14]		3.8(3)				15.6(13)			3.8(7)*	7.8(10)
Huguet(1966)[15]		4.5(7)				12.5(13)*	0.70(14)	0.80(15)	3.7(6)*	8.3(15)
Schöneberg(1966)[16]		3.8(4)				13.5(14)		1.10(15)*	3.5(4)	6.5(8)
Auble(1967)[17]		4.5(3)				16.1(8)	0.4(2)	0.59(9)	2.7(2)	7.4(6)
Barker(1967)[18]		4.8(3)				16.9(10)	1.3(6)*	1.1(2)*	2.93(30)	7.37(50)
Sher(1968)[19]		4.2(4)				16.7(10)	0.5(3)	0.63(20)	2.9(4)	7.7(5)
Chasman(1967)[20]		4.0(8)				14.0(30)		0.68(14)	2.6(6)	6.6(14)
Armitage(1969)[21]		4.6(3)				16.2(10)		0.9(2)	3.9(3)*	8.2(5)
Aubin(1969)[22]		4.15(12)				14.95(40)			2.78(14)	7.56(21)
Scott(1969)[23]	0.12(2)		0.23(3)*	0.12(3)*			0.65(6)	0.63(5)		
Phelps(1970)[24]	0.15*(2)	4.37(13)	0.20(2)	0.08(2)	0.05(2)	16.0(5)	0.62(6)	0.74(3)	3.13(10)	8.1(2)
Camp(1971)[25]	0.123(3)	4.340(45)	0.200(8)	0.077(1)	0.065(9)	15.78(16)	0.641(8)	0.721(15)	3.095(31)	7.95(8)
Gehrke(1971)[26]		4.16(21)				16.5(8)			2.99(20)	8.2(6)
Genest(1971)[27]	0.11(2)	3.96(40)	0.14(2)*	<0.02	0.07(1)	14.9(9)	0.55(6)	0.67(7)	2.83(30)	7.7(6)
Singh(1971)[28]		4.42(8)					0.47(6)	0.58(5)	2.60(12)	7.0(3)
Peterman(1972)[29]#		4.08(57)				15.36(197)			2.88(45)	6.25(96)
		4.4(6)				15.98(201)			2.28(30)*	6.8(9)
		5.30(84)*				14.55(186)			2.59(47)	6.85(89)
Boydell(1974)[30]		4.4(1)				15.9(3)			3.1(1)	7.8(1)
Hofmann(1974)[31]	0.120(12)	4.35(12)	0.177(9)	0.065(12)	0.063(6)		0.63(3)	0.71(3)		
Katou(1975)[32]	0.120(3)	4.189(52)	0.172(4)	0.078(3)	0.062(3)	15.369(241)	0.665(23)	0.667(21)	3.025(72)	7.694(146)
Gehrke(1977)[33]		4.24(6)				15.65(22)	0.650(10)	0.724(11)	3.09(6)	7.95(14)
Hautala(1978)[34]	0.12(2)	4.24(15)	0.195(10)		0.05(1)	15.26(15)	0.59(3)	0.70(2)	2.97(3)	7.64(6)
Stewart(1980)[35]	0.128(6)	4.32(6)	0.173(7)	0.091(13)	0.062(7)	15.5(4)	0.629(13)	0.719(15)	3.182(66)	8.14(17)
Sharma(1980)[36]	0.124(10)	4.29(8)	0.182(11)	0.086(3)	0.055(9)	15.61(30)	0.62(2)	0.71(2)	2.95(6)	7.74(2)
Yoshizawa(1980)[37]	0.130(6)	4.265(21)	0.172(7)	0.084(6)	0.070(11)	15.49(7)	0.657(23)	0.707(11)	3.026(17)	7.766(36)
Grütter(1982)[38]		4.27(15)				15.11(38)			2.97(11)	7.60(19)
Alburger(1989)[39]										
Meyer(1990)[40]	0.125(5)	4.33(4)	0.20(1)	0.077(5)	0.06(1)	15.70(15)	0.64(1)	0.720(15)	3.08(3)	7.89(7)
Schötzig(1992)[41]	0.118(6)	4.29(4)	0.185(7)	0.065(8)	0.072(12)	15.48(15)	0.638(8)	0.724(10)	3.04(5)	7.90(13)
Raman(2000)[42]s		4.23(7)				15.42(25)			3.03(5)	7.835(120)
Molnár(2002)[43]s		4.22(15)				15.24(9)	0.641(5)	0.698(3)	2.976(15)	7.69(3)
YuWeixiang(2009)[44]s		4.26(3)				15.36(9)			3.02(2)	7.79(5)
Dryak(2008)[45]	0.122(3)	4.31(4)	0.178(7)	0.071(5)	0.059(5)	15.37(8)	0.647(8)	0.710(7)	3.014(24)	7.803(40)
Evaluated	**0.122(3)**	**4.282(21)**	**0.180(4)**	**0.0777(11)**	**0.0616 (30)**	**15.44 (4)**	**0.640 (5)**	**0.704 (3)**	**3.020 (15)r**	**7.754 (20)**

表 A2 (续) ^{56}Co β 衰变γ射线相对强度测量数据及推荐数据

Table A2. (continued). Measured and recommended relative intensities of γ-rays from β decay of ^{56}Co.

Ref. / E_γ/keV	2113.1	2212.9	2276.4	2373.7	2523.0	2598.4	2657.4	3009.6
Pettersson(1965)[13]						17.4 (15)		1.3 (4)
Dolan(1966)[14]						16.0 (27)		1.9* (8)
Huguet(1966)[15]	0.40 (9)	0.43 (9)	0.12 (3)	0.15* (3)	<0.03	20.0 (20)		1.25 (25)
Schöneberg(1966)[16]						17.4 (17)		1.5* (2)
Auble(1967)[17]	0.29 (5)					17.3 (9)		0.9 (2)
Barker(1967)[18]	0.4 (1)	0.4 (1)				15.0 (13)		0.8 (3)
Sher(1968)[19]	0.32 (15)	0.20* (2)				17.0 (6)		1.0 (1)
Chasman(1967)[20]	0.56* (8) (12)	0.60* (9) (13)				14.0 (21) (30)		0.60 (9) (13)
Armitage(1969)[21]	0.3 (1)					18.7 (11)		0.9 (5)
Aubin(1969)[22]						16.55 (44)		
Scott(1969)[23]	0.32 (4)	0.46 (5)	0.14 (2)	0.11 (2)	0.09 (3)			
Phelps(1970)[24]	0.39 (3)	0.40 (3)	0.15 (2)	0.12 (2)	0.054 (15)	17.2 (4)		0.93 (6)
Camp(1971)[25]	0.387 (4)	0.377 (10)	0.106 (5)	0.055 (12)	0.060 (5)	16.85 (17)		1.010 (11)
Gehrke(1971)[26]						18.0 (9)		
Genest(1971)[27]	0.26 (3)	0.28* (3)	0.10 (2)	0.08 (2)	0.07 (2)	16.5 (10)	~0.02	0.92 (10)
Singh(1971)[28]	0.34 (4)	0.30* (6)						1.55* (12)
Peterman(1972)[29]#						15.65 (204) (224)		
						17.3 (22) (24)		
						14.44 (175) (193)		
Boydell(1974)[30]						17.3 (4)		1.0 (2)
Hofmann(1974)[31]	0.37 (2)	0.36 (2)	0.128 (8)	0.059 (12)	0.044 (10)		0.016 (5)	0.98 (9)
Katou(1975)[32]	0.375 (17)	0.387 (18)	0.146 (7)			16.64 (22)		0.922 (29)
Gehrke(1977)[33]	0.387 (8) (9)	0.406 (9) (10)				17.34 (26) (31)		1.06 (3) (3)
Hautala(1978)[34]	0.34 (2)	0.39 (2)	0.15 (2)	0.050 (6)	0.084 (9)	17.19 (15)	0.029 (4)	1.05 (3)
Stewart(1980)[35]	0.375 (14)	0.42 (2)	0.117 (9)	0.097 (12)	0.079 (11)	17.40 (38)	<0.05	0.84 (4)
Sharma(1980)[36]	0.35 (1)	0.35 (1)	0.115 (10)	0.079 (10)	0.14* (1)	16.41 (33)	0.015 (3)	1.02 (2)
Yoshizawa(1980)[37]	0.363 (7) (7)	0.389 (8) (8)	0.124 (7) (7)	0.083 (11) (11)	0.068 (11) (11)	16.96 (6) (8)	0.021 (6) (6)	
Grütter(1982)[38]								
Alburger(1989)[39]								
Meyer(1990)[40]	0.385 (5)	0.35 (1)	0.110 (5)	0.08 (1)	0.060 (5)	17.29 (15)		1.05 (1)
Schötzig(1992)[41]	0.376 (10) (10)	0.395 (14) (14)	0.128 (19) (19)	0.082 (22) (22)		17.26 (28) (28)		1.16 (3) (3)
Raman(2000)[42]s						17.1 (3)		
Molnár(2002)[43]s	0.372 (4) (4)	0.388 (4) (4)				16.82 (7) (8)		1.033 (11) (11)
YuWeixiang(2009)[44]s						16.62(12)		
Dryak(2008)[45]	0.380 (6)	0.391 (6)	0.117 (10)	0.082 (6)	0.055 (5)	17.01 (15)	0.018 (3)	1.036 (18)
Evaluated	**0.376 (4)r**	**0.388 (4)r**	**0.119 (5)r**	**0.081(6)r**	**0.061 (5)r**	**16.77 (8)s**	**0.019 (3)**	**1.028 (12)**

表 A2 (续) ^{56}Co β 衰变γ射线相对强度测量数据及推荐数据

Table A2. (continued). Measured and recommended relative intensities of γ-rays from β decay of ^{56}Co.

Ref. / E_γ/keV	3201.9	3253.4	3273.0	3369.7	3451.1	3547.9	3600.7	3611.8
Pettersson(1965)[13]	3.2 (5)	8.5 (6)	1.5 (4)		0.95 (15)			
Dolan(1966)[14]	2.9 (11)	5.8 (22)	1.2 (5)		0.7 (3)	0.2 (1)		
Huguet(1966)[15]	3.80 (45)	9.2 (9)	2.1 (4)		1.1 (2)	0.16 (3)	0.010 (5)	<0.005
Schöneberg(1966)[16]	3.4 (4)	8.3 (8)	1.9 (3)		0.7 (1)	0.21 (3)		
Auble(1967)[17]	3.4 (2)	7.8 (4)	1.5 (3)		0.87 (9)	0.15 (3)		
Barker(1967)[18]	2.9 (3)	6.6 (6)	1.35 (20)		0.63* (15)	0.11 (5)		
Sher(1968)[19]	2.8 (4)	7.3 (5)	1.5 (4)		0.83 (10)	0.15 (5)	0.02 (1)	
Chasman(1967)[20]	2.9 (4) (6)	7.2 (11) (15)	1.60 (24) (34)		0.72 (11) (15)	0.20 (3) (4)		
Armitage(1969)[21]	3.0 (2)	7.1 (4)	1.3 (1)		0.8 (1)	0.1 (1)		
Aubin(1969)[22]	3.03 (14)	7.35 (21)	1.72 (13)		0.85 (7)			
Scott(1969)[23]							0.024* (4)	0.007 (3)
Phelps(1970)[24]	3.10 (11)	7.5 (2)	1.72 (5)		0.89 (3)	0.18 (1)	0.014 (4)	0.011 (3)
Camp(1971)[25]	3.03 (3)	7.390 (75)	1.755 (18)	0.011 (2)	0.875 (9)	0.178 (3)	0.015 (1)	0.0065 (10)
Gehrke(1971)[26]	3.20 (35)	7.7 (9)	1.71 (25)		0.93 (20)	0.2 (1)		
Genest(1971)[27]	2.81 (28)	7.0 (6)	1.69 (17)	0.015* (3)	0.82 (1)	0.15 (2)	0.014 (3)	0.007 (2)
Singh(1971)[28]			1.71 (9)		0.94 (2)	0.20 (3)		
Peterman(1972)[29]#	2.86 (34) (38)	6.98 (86) (96)-			0.98 (24) (25)			
	3.03 (36) (40)	7.4 (8) (9)	1.57 (21) (23)		1.03 (14) (15)			
	2.55 (33) (36)	6.52 (78) (86)	1.25 (20) (21)		0.84 (13) (14)			
Boydell(1974)[30]	3.2 (1)	8.2 (4)	1.9 (1)		1.00 (4)	0.20 (2)		
Hofmann(1974)[31]				0.008 (2)	0.89 (4)	0.178 (9)	0.016 (2)	0.008 (2)
Katou(1975)[32]	3.067 (157)	7.45 (43)	1.697 (103)		0.936 (84)	0.164 (18)		
Gehrke(1977)[33]	3.18 (10) (10)	7.79 (24) (25)	1.85 (6) (6)		0.93 (3) (3)	0.190 (6) (6)	0.0165 (7) (7)	0.0085 (4) (4)
Hautala(1978)[34]	3.24 (3)	7.97 (11)	1.84 (3)	0.010 (1)	0.95 (2)	0.196 (5)	0.012 (3)	0.005 (2)
Stewart(1980)[35]	3.03 (7)	7.60 (15)	1.815 (36)	0.011 (2)	0.90 (2)	0.196 (6)	0.015 (2)	0.010 (2)
Sharma(1980)[36]	3.04 (6)	7.52 (15)	1.77 (4)	0.007 (2)	0.90 (2)	0.19 (5)	0.015 (3)	0.007 (2)
Yoshizawa(1980)[37]								
Grütter(1982)[38]								
Alburger(1989)[39]								
Meyer(1990)[40]	3.24 (3)	7.937 (65)	1.89 (2)	0.011 (2)	0.954 (10)	0.198 (5)	0.018 (1)	
Schötzig(1992)[41]	3.32 (7) (7)	8.13 (17) (17)	1.93 (4) (4)		0.973 (20) (20)	0.200 (5) (5)		
Raman(2000)[42]s	3.16 (6)	7.815 (160)	1.84 (4)		0.93 (3)	0.19 (1)		
Molnár(2002)[43]s	3.196 (17) (18)	7.85 (4) (4)	1.854 (12) (13)		0.94 (1) (1)	0.196 (2) (2)		
Yu(2009)[44]s	3.16(3)	7.62(6)	1.82(2)		0.919(10)			
Dryak(2008)[45]	3.238 (30)	7.980 (20)	1.896 (8)	0.009 (2)	0.950 (10)	0.195 (4)	0.0170 (10)	0.0090 (6)
Evaluated	**3.178 (18)**	**7.75 (8)s**	**1.811 (14)**	**0.0097(10)**	**0.927 (9)r**	**0.194 (2)r**	**0.0163 (7)**	**0.0084 (4)**

*: 统计检验出界，忽略。

#: Peterman 等[29]（1972 年）使用三种不同的探测器（圆柱形、矩形和梯形）测量，每种探测器都通过蒙特卡洛计算进行了校准；这些探测器测量的数据分别列于表中。

s: 对γ 2598 keV 和γ 3253 keV 两条射线，加权平均时只采用这些测量数据，其他测量未被采用。

r: 采用 Rajeval 技术方法的加权平均值（Rajput 等[46]（1992 年））。

a: 直接取 Yu 等[44]（2009 年）的评价。

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