

A NEW ONLINE DATABASE OF NUCLEAR ELECTROMAGNETIC MOMENTS

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University of Athens

<http://magneticmoments.info>

or

<http://www-nds.iaea.org/nuclearmoments>

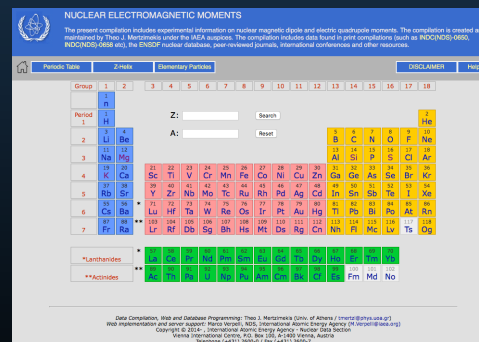
NUCLEAR ELECTROMAGNETIC MOMENTS

The present compilation includes experimental information on nuclear magnetic dipole and electric quadrupole moments. The compilation is created and maintained by Theo J. Mertzimekis under the IAEA auspices. The compilation includes data found in print compilations (such as INDC(NDS) 0880, INDC(NDS) 0888 and the ENSDF nuclear database, peer-reviewed journals, international conferences and other resources).

Periodic Table Z: Search

Elementary Particles

DISCLAIMER Help



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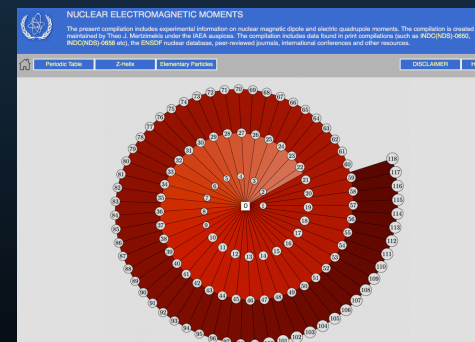
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Potassium (Z=19)

Isotope	Energy (keV)	Spin	Spin Parity	μ (n.m.)	Q (b)	Ref. No.	Method	NDS Keyword	Ref.
³⁹ K	0	stable	3/2 ⁺	+0.39147(3)		ABLS	1993J008	10.1016/B96-00023-0(000000-1)	
⁴⁰ K	1464.050			+0.39146(2)(1)		ABLS	1974K050	10.1007/BF00600007	
⁴¹ K	1464.053			+0.39150731(12)		NMR	1974K053		
⁴² K				+0.0585(6) a Ric		R	2009PV02	10.1003/978-94-007-0001-8(002)	
⁴³ K				+0.060(3) a		R	1995K003	10.1016/S0093-2647(95)00040-0	
⁴⁴ K				+0.0494(1) a		R	1995K006	10.1003/97-464732	
⁴⁵ K						OLR	1971S112	10.1103/PhysRevA.3.837	
⁴⁶ K	2914	48 ps	7/2 ⁻	4.0(6)		[⁴¹ K 1294]	RCV	1991L019	10.1007/BF01416330
⁴⁷ K	3396	37 ps	9/2 ⁻	2.4(2)		[⁴¹ K 1294]	RCV	1991L019	10.1007/BF01416330
⁴⁸ K	8095	14 ps	19/2 ⁻	+3.3(3)		[⁴¹ K 3838]	TF	1995P001	10.1103/PhysRevC.45.156

WHY A DB ON MOMENTS?

- 📌 There has been **NO** database of nuclear moments
- 📌 Lots of available data on **magnetic** dipole and **electric** quadrupole moments
- 📌 Expecting an increase after upgrades of RIB labs
- 📌 **Existing** tabulations:
 - 📌 Latest by N.J. Stone, INDC(NDS)-0658 (2014)
 - 📌 Only in print
 - 📌 Non-interactive, not user-friendly, no search
 - 📌 Limited meta data
 - 📌 Long interval between updates (3-5 years)
- 📌 **No data** evaluation

MAGNETICMOMENTS.INFO

- 📌 Supported by IAEA-Nuclear Data Section
- 📌 It is built on top of earlier tabulations

μ , Q and
related
data

> 1100
isotopes

> 5300
entries

Links to
NSR
keys

Links to
original
DOI

Two (2)
User
Interfaces

Isotopes
Isobars
Elem. part.

Four (4)
updates
per year

BLOG

Scalability
Easy
integration

- 📌 Still NO evaluated data

magneticmoments.info



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[Periodic Table](#)[Z-Helix](#)[Elementary Particles](#)[DISCLAIMER](#)[Help](#)

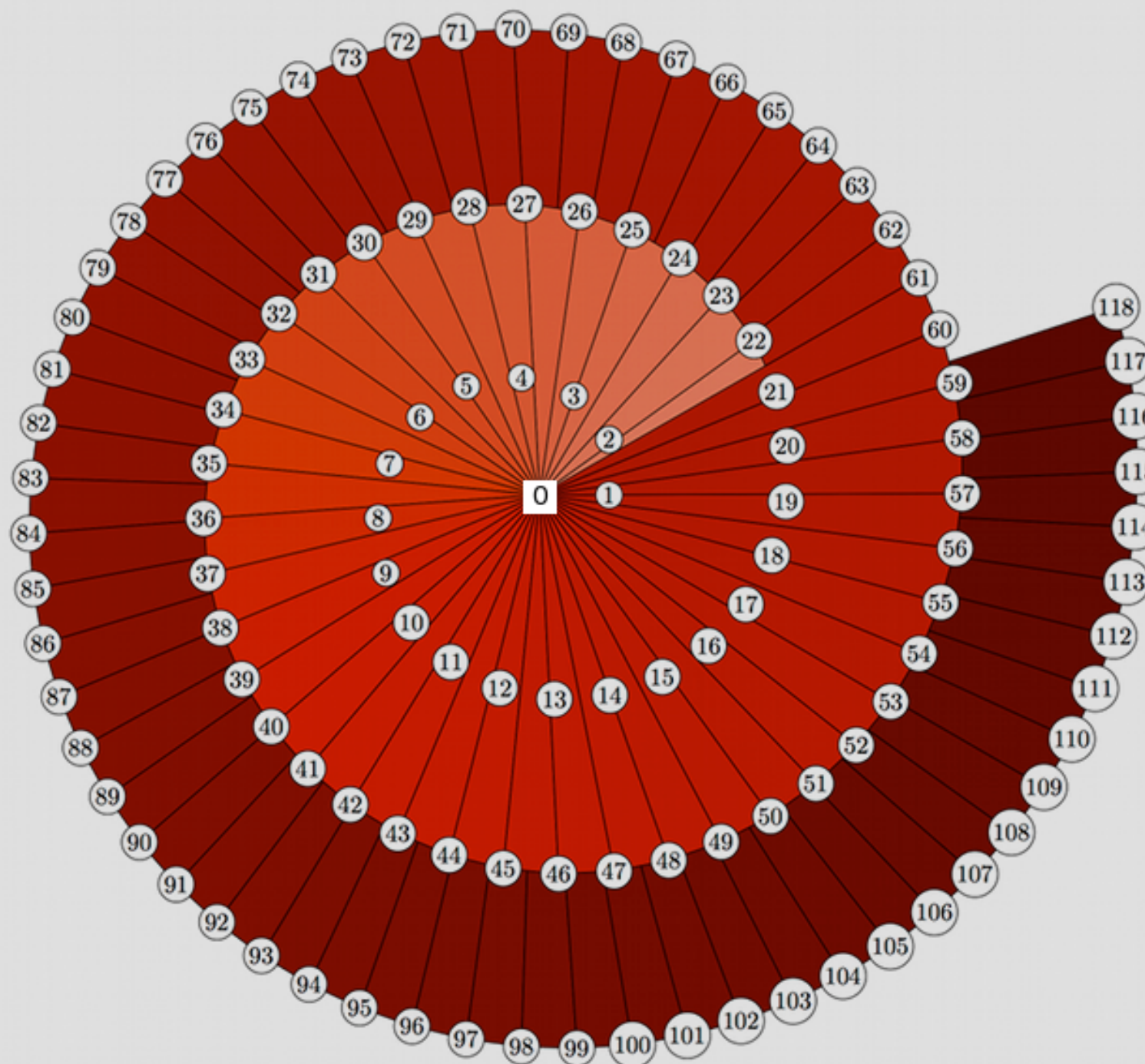
Group	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	1 n																	
Period 1	1 H																	2 He
2	3 Li	4 Be											5 B	6 C	7 N	8 O	9 F	10 Ne
3	11 Na	12 Mg											13 Al	14 Si	15 P	16 S	17 Cl	18 Ar
4	19 K	20 Ca	21 Sc	22 Ti	23 V	24 Cr	25 Mn	26 Fe	27 Co	28 Ni	29 Cu	30 Zn	31 Ga	32 Ge	33 As	34 Se	35 Br	36 Kr
5	37 Rb	38 Sr	39 Y	40 Zr	41 Nb	42 Mo	43 Tc	44 Ru	45 Rh	46 Pd	47 Ag	48 Cd	49 In	50 Sn	51 Sb	52 Te	53 I	54 Xe
6	55 Cs	56 Ba	* 71 Lu	72 Hf	73 Ta	74 W	75 Re	76 Os	77 Ir	78 Pt	79 Au	80 Hg	81 Tl	82 Pb	83 Bi	84 Po	85 At	86 Rn
7	87 Fr	88 Ra	** 103 Lr	104 Rf	105 Db	106 Sg	107 Bh	108 Hs	109 Mt	110 Ds	111 Rg	112 Cn	113 Nh	114 Fl	115 Mc	116 Lv	117 Ts	118 Og
*Lanthanides	*		57 La	58 Ce	59 Pr	60 Nd	61 Pm	62 Sm	63 Eu	64 Gd	65 Tb	66 Dy	67 Ho	68 Er	69 Tm	70 Yb		
**Actinides			** 89 Ac	90 Th	91 Pa	92 U	93 Np	94 Pu	95 Am	96 Cm	97 Bk	98 Cf	99 Es	100 Fm	101 Md	102 No		

Data Compilation, Web and Database Programming: Theo J. Mertzimekis (Univ. of Athens / tmertzi@phys.uoa.gr)
Web implementation and server support: Marco Verpilli, NDS, International Atomic Energy Agency (M.Verpilli@iaea.org)
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Potassium (Z=19)

[35K](#)
[36K](#)
[37K](#)
[38K](#)
[39K](#)
[40K](#)
[41K](#)
[42K](#)
[43K](#)
[44K](#)
[45K](#)
[46K](#)
[47K](#)
[49K](#)
[51K](#)

Isotope	Energy [keV]	t _{1/2}	Spin/Parity	μ [nm]	Q [b]	Ref. Std	Method	NSR keyword	doi
³⁹ K	0.	stable	3/2 ⁺	+0.39147(3)			ABLS	1993Du08	10.1016/0168-9002(93)90392-U
				+0.3914662(3)			AB/D	1974Be50	10.1007/BF01680407
				+0.39150731(12)		[² H]	NMR	1974Sa24 1974Sa25	
					+0.0585(6) a Rec		R	2008Py02 1998Ke05	10.1080/00268970802018367 10.1016/S0009-2614(98)00680-0
					+0.060(2) a		R	1993Su36	10.1063/1.464732
					+0.049(4) st		OL, R	1971St12	10.1103/PhysRevA.3.837
	2814.	48 ps	7/2 ⁻	4.0(4)		[⁴¹ K 1294]	RIGV	1981Le19	10.1007/BF01416300
	3598.	37 ps	9/2 ⁻	2.4(2)		[⁴¹ K 1294]	RIGV	1981Le19	10.1007/BF01416300
	8030.	14 ps	19/2 ⁻	+3.3(3)		[⁴¹ Ca 3830]	TF	1992Pa01	10.1103/PhysRevC.45.166

FUTURE WORK

- 📌 Sync spectroscopy data with ENSDF
- 📌 Provide plotting capabilities (useful for systematics)
- 📌 Add more nuclear observables (eg radii, masses)
- 📌 Incorporate evaluated data
- 📌 **UPDATE, UPDATE, UPDATE!**

Thanks to IAEA Nuclear Data Section

VISIT POSTER

P125

Test it yourself live!

NUCLEAR ELECTROMAGNETIC MOMENTS

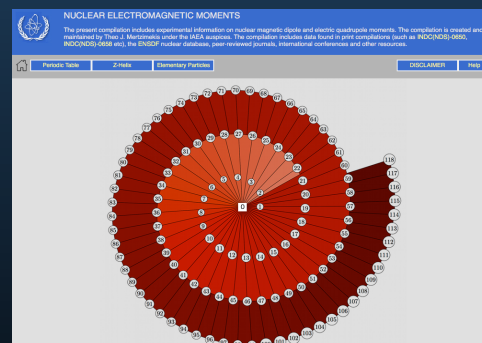
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Group	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Period	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	H	He																
2	Li	Be	B	C	N	O	F	Ne										
3	Na	Mg	Al	Si	P	S	Cl	Ar										
4	K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
5	Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe
6	Cs	Ba	La	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	
7	Fr	Ra	Ac	Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr	

*Lanthanides
**Actinides

Data Compilation, Web and Database Programming: Tamas J. Mertzima (CNR, of Athens / tmertzi@nps.ac.gr)
Web implementation and server support: Radoslaw Wozniak, NPS, International Atomic Energy Agency (r.wozniak@iaea.org)
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Potassium (Z=19)

Isotope	Temp. (K)	Spin	g-factor	Q (eb)	Ref. No.	Ref. No.	Ref. No.	Ref. No.
39K	0	stable	3/2+	+0.39147(3)	ABD	1995D08	10.1016/0168-9002(95)00392-1	
				+0.3914662(8)	ABD	1974B050	10.1007/BF01600407	
				+0.3915073(12)	[7H]	NMR	1974G24	
							1974G25	
				+0.0585(1) ± R	R	2008P02	10.1006/0026-8976(02)11367	
							10.1016/0009-2614(01)00060-0	
				+0.060(2) ±	R	1995B06	10.1007/978-3-7082113367	
				+0.059(4) ±	OLR	1973A12	10.1103/PhysRevA.3.1337	
2014	48 ps	7/2-	4.0(4)	[7K 1294]	RECV	1981u19	10.1007/BF01416300	
3596	37 ps	9/2-	2.4(2)	[7K 1294]	RECV	1981u19	10.1007/BF01416300	
8090	14 ps	19/2-	+3.3(3)	[7K 3830]	TF	1992P01	10.1103/PhysRevC.45.166	