

UNIVERSITY OF LEIPZIG

ADVANCED LABS

Lab report

High-Resolution Gamma-Spectroscopy with Ge-Semiconductor Detector

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1 Introduction

2 Analysis

Parent Nuclide	Origin	Experimental Energy [keV]	Theoretical Energy [keV]	% Error
²⁰⁸ Tl	²³² Th Series, or ²⁰⁸ Pb(n,p)	2618.58	2164.51	0.19
²¹⁴ Bi	²³⁸ U or ²²⁶ Ra Series	1766.32	1764.49	0.10
⁴⁰ K	Primordial	1461.58	1460.82	0.05
²¹⁴ Bi	²³⁸ U or ²²⁶ Ra Series	1121.32	1120.29	0.09
²²⁸ Ac	²³² Th Series	911.49	911.20	0.03
²¹⁴ Bi	²³⁸ U or ²²⁶ Ra Series	609.65	609.31	0.06
²⁰⁸ Tl	²³² Th Series	583.50	583.19	0.05
Annihilation	β^+ Decay and Doppler Broadening	511.19	511.00	0.04
²¹⁴ Pb	²³⁸ U or ²²⁶ Ra Series	352.36	351.93	0.12
²¹⁴ Pb	²³⁸ U or ²²⁶ Ra Series	295.54	295.22	0.11
²¹² Pb	²³² Th Series	239.05	238.63	0.18
²²⁸ Ac	²³² Th Series	209.67	209.26	0.20
²²⁶ Ra	²³⁸ U Series	186.43	186.21	0.12

Table 1

3 Conclusion

Appendices