

Lu-167 (3.24m) ECB+	Lu-170 (16.01h) EC	Lu-172 (1.87y) EC	Lu-173 (23.6h) EC	Lu-174 (2.0E+15y) A	Lu-175 (70d) EC	Lu-176 (STABLE)	Lu-177 (STABLE)
Lu-169 (34.06h) ECB+	Lu-170 (2.012d) ECB+	Lu-172m (3.7m) IT	Lu-173 (8.1h) EC	Lu-174 (3.31y) ECB+	Lu-175 (STABLE)	Lu-176 (3.85E+10y) B-	Lu-177 (STABLE)
Yb-167 (7.5m) ECB+	Yb-168 (STABLE)	Yb-169 (32.026d) EC	Yb-170 (STABLE)	Yb-172 (STABLE)	Yb-173 (STABLE)	Yb-174 (STABLE)	Yb-175 (4.185d) B-

LUTETIUM-172M

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Lu-172m
Atomic number (Z): 71
Mass number (A): 172
Neutron number (N): 101

RADIOACTIVE DECAY

Decay modes: Internal transition
Half-life: 3.7 [m]
Decay constant: 3.1223e-03 [1/s]
Daughters: Lu-172 (100.0%)
Radioactive daughters: Lu-172

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.04038 [MeV]
Mean photon energy: 0.00151 [MeV]
Air kerma rate constant, Γ_{10} : 2.223e-19 [Gy · m²/Bq · s]
Air kerma coefficient, K_{air} : 2.223e-19 [Gy · m²/Bq · s]
Equilibrium dose constant for weakly-penetrating radiations (a and/or electrons), Δ_{wp} : 6.470e-15 [Gy · kg/Bq · s]
Equilibrium dose constant for alphas, Δ_{α} : 0.000e+00 [Gy · kg/Bq · s]

Equilibrium dose constant for betas/electrons, $\Delta_{\beta-, \beta+, e-}$: 6.470×10^{-15} [Gy · kg/Bq · s]

Equilibrium dose constant for photons, Δ_p : 2.419×10^{-16} [Gy · kg/Bq · s]

DOSE POINT KERNELS (PLOT)

Dose point kernel source: **Graves, et al. Medical Physics. 2019 Nov.; 46(11):5284-5293.**

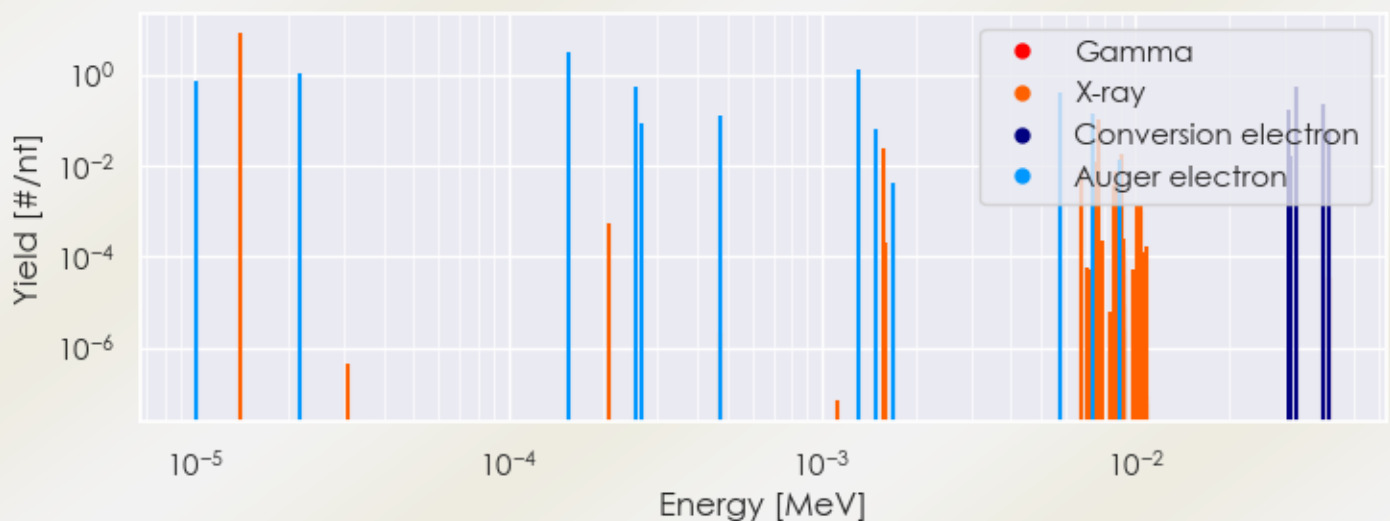
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Lu-172m DPK.csv

SUMMARY SPECTRA (PLOT)

Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/Lu-172m Summary Spectrum.csv

TABULATED DATA

SUMMARY SPECTRA (TABLE)

Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**

Note: Radiations with yield < 0.01 are excluded from the table, but are available in the linked *.csv data.

Download tabulated summary spectra file here: [www.mirdsoft.org/products/MIRDspecs/Lu-172m Summary Spectrum.csv](http://www.mirdsoft.org/products/MIRDspecs/Lu-172m%20Summary%20Spectrum.csv)

Energy [MeV]	Yield [# / n _t] if > 0.01	Radiation type
1.39930e-05	8.461e+00	X-ray
1.56788e-03	2.325e-02	X-ray
7.59238e-03	1.216e-02	X-ray
7.64542e-03	1.074e-01	X-ray
9.04387e-03	1.848e-02	X-ray
1.01341e-05	7.332e-01	Auger electron
2.16364e-05	1.047e+00	Auger electron
1.56344e-04	3.024e+00	Auger electron
2.55799e-04	5.478e-01	Auger electron
2.64654e-04	8.892e-02	Auger electron
4.75821e-04	1.251e-01	Auger electron
1.30666e-03	1.274e+00	Auger electron
1.48060e-03	6.167e-02	Auger electron
5.77325e-03	3.972e-01	Auger electron
7.31546e-03	1.441e-01	Auger electron
8.88507e-03	1.330e-02	Auger electron
3.10150e-02	1.675e-01	Conversion electron
3.14870e-02	1.688e-02	Conversion electron
3.26168e-02	5.407e-01	Conversion electron
3.98439e-02	2.146e-01	Conversion electron
4.18600e-02	6.030e-02	Conversion electron

USEFUL LINKS

Isotope decay characteristics are periodically updated as better measurements can be made - changes that may not be reflected on this page. Please see useful links:

National Nuclear Data Center (NNDC): <https://www.nndc.bnl.gov/nudat3/mird/>

International Atomic Energy Agency (IAEA) Livechart: <https://www-nds.iaea.org/relnsd/vcharthtml/VChartHTML.html>

REFERENCE LINKS

ICRP Report 107: <https://www.icrp.org/publication.asp?id=ICRP%20Publication%20107>

Graves et al. Dose Point Kernels: <https://doi.org/10.1002/mp.13789>

MIRD Decay Schemes 2nd Edition: https://sites.snmmi.org/SNMMI-MAIN/iCore/Store/StoreLayouts/Item_Detail.aspx?iProductCode=0-932004-80-6