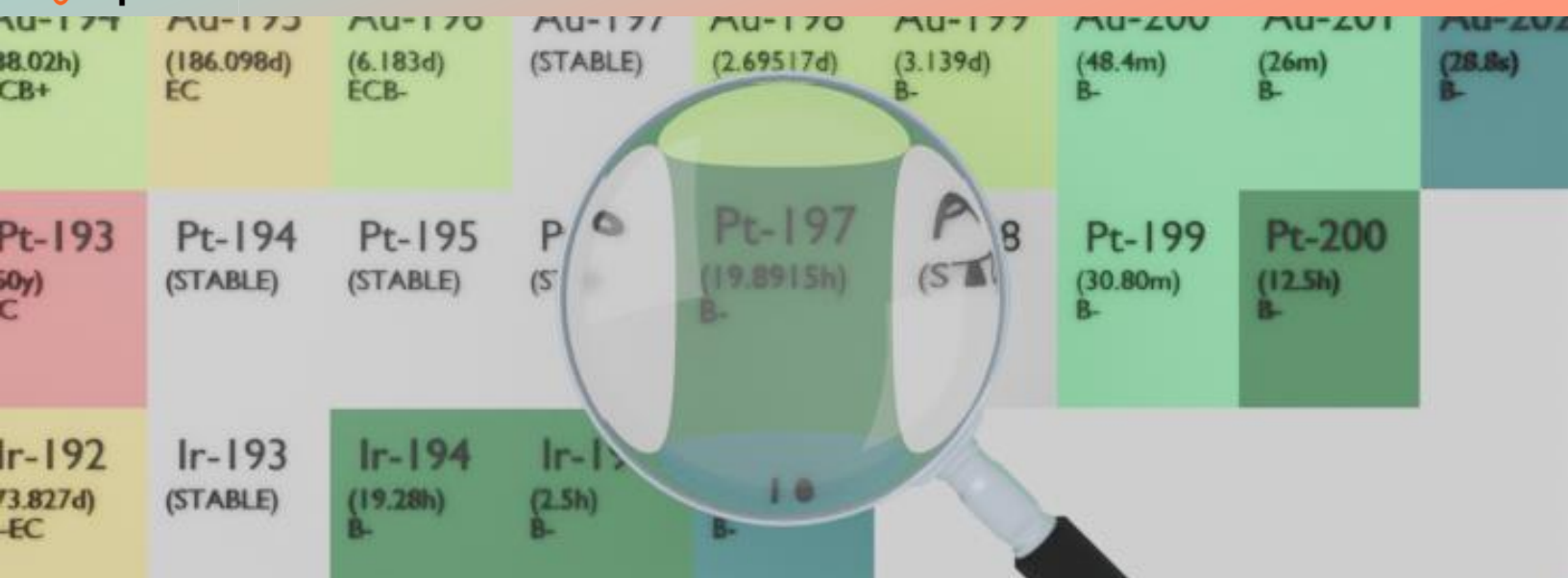




PLATINUM-197

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Pt-197
Atomic number (Z): 78
Mass number (A): 197
Neutron number (N): 119

RADIOACTIVE DECAY

Decay modes: β^-
Half-life: 19.89 [h]
Decay constant: 9.6796×10^{-6} [1/s]
Daughters: Au-197 (100.0%)
Radioactive daughters: None

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.25522 [MeV]
Mean photon energy: 0.02563 [MeV]
Air kerma rate constant, Γ_{10} : 5.419×10^{-18} [Gy $\cdot$ m²/Bq $\cdot$ s]
Air kerma coefficient, K_{air} : 5.419×10^{-18} [Gy $\cdot$ m²/Bq $\cdot$ s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 4.089×10^{-14} [Gy $\cdot$ kg/Bq $\cdot$ s]
Equilibrium dose constant for alphas, Δ_{α} : 0.000e+00 [Gy $\cdot$ kg/Bq $\cdot$ s]

Equilibrium dose constant for betas/electrons, $\Delta_{\beta, \beta+, e^-}$: 4.089e-14 [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 4.106e-15 [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

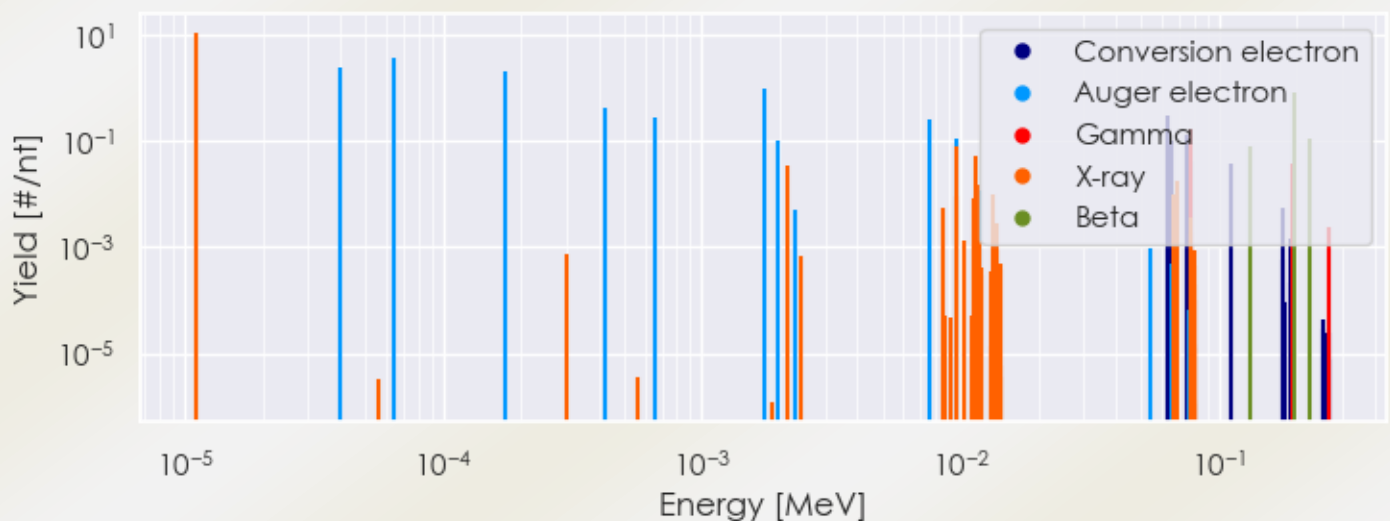
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Pt-197 DPK.csv

SUMMARY SPECTRA (PLOT)

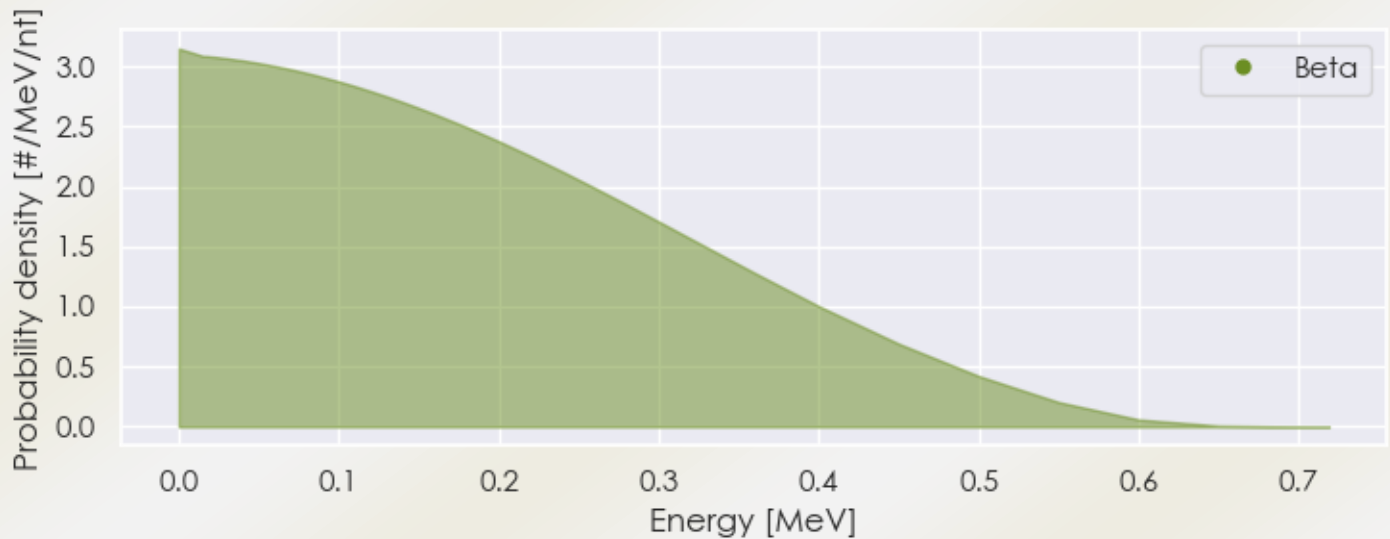
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/Pt-197 Summary Spectrum.csv

BETA SPECTRA (PLOT)

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



Download tabulated beta spectra file here: [www.mirdsoft.org/products/MIRDspecs/Pt-197 Beta Spectrum.csv](http://www.mirdsoft.org/products/MIRDspecs/Pt-197%20Beta%20Spectrum.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/Pt-197 Summary Spectrum.csv](http://www.mirdsoft.org/products/MIRDspecs/Pt-197%20Summary%20Spectrum.csv)

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
1.11037e-05	1.108e+01	X-ray
2.14687e-03	3.330e-02	X-ray
9.70979e-03	8.179e-02	X-ray
1.14753e-02	5.048e-02	X-ray
1.15869e-02	1.528e-02	X-ray
6.71839e-02	1.008e-02	X-ray
6.90380e-02	1.716e-02	X-ray
7.73500e-02	1.702e-01	Gamma
1.91437e-01	3.660e-02	Gamma
1.32068e-01	8.200e-02	Beta

1.97580e-01	8.120e-01	Beta
2.25219e-01	1.060e-01	Beta
4.01567e-05	2.447e+00	Auger electron
6.45599e-05	3.730e+00	Auger electron
1.74727e-04	1.967e+00	Auger electron
4.20549e-04	4.008e-01	Auger electron
6.54342e-04	2.642e-01	Auger electron
1.75469e-03	9.753e-01	Auger electron
1.97557e-03	1.007e-01	Auger electron
7.55374e-03	2.622e-01	Auger electron
9.69461e-03	1.105e-01	Auger electron
1.18727e-02	1.131e-02	Auger electron
6.30140e-02	3.072e-01	Conversion electron
6.35740e-02	1.411e-01	Conversion electron
6.54280e-02	1.048e-01	Conversion electron
7.46160e-02	1.349e-01	Conversion electron
7.73500e-02	4.097e-02	Conversion electron
1.10477e-01	3.579e-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