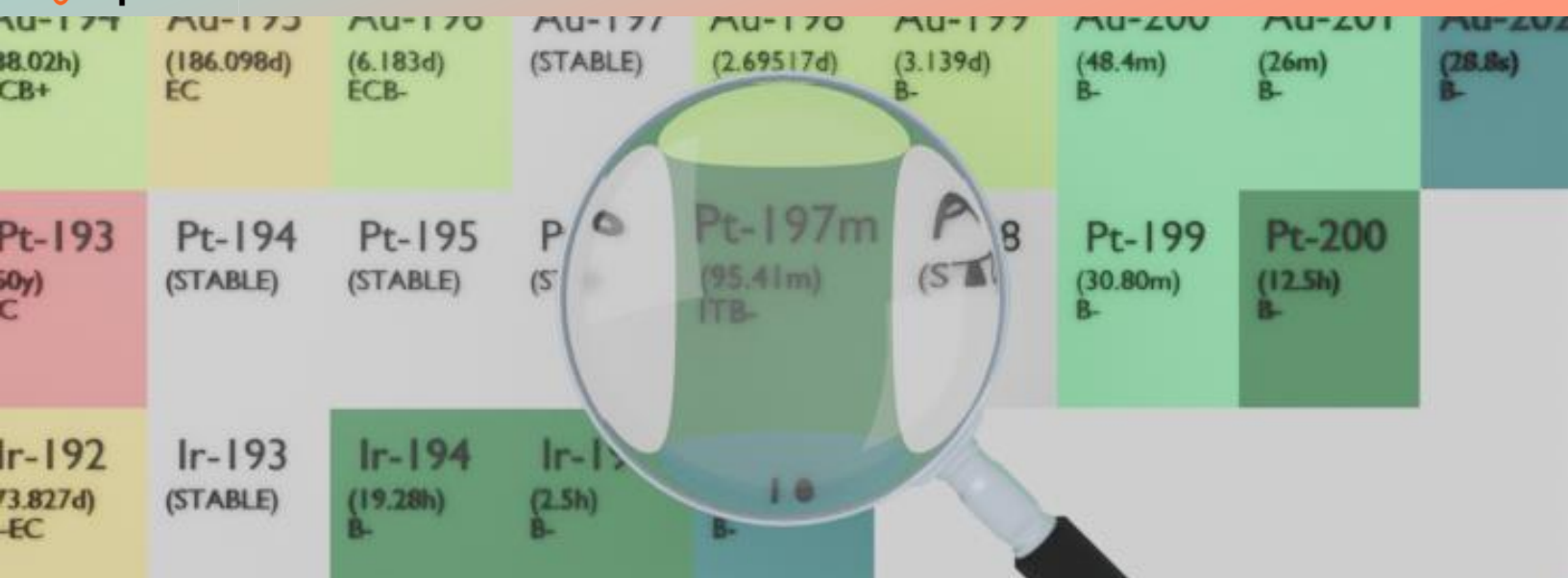




PLATINUM-197M

SUMMARY DATA

GENERAL

CLASSIFICATION

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

RADIOACTIVE DECAY

Decay modes: β^- , Internal transition
Half-life: 95.41 [m]
Decay constant: 1.2108×10^{-4} [1/s]
Daughters: Pt-197 (96.7%), Au-197 (3.3%)
Radioactive daughters: Pt-197

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.32499 [MeV]
Mean photon energy: 0.08389 [MeV]
Air kerma rate constant, Γ_{10} : 1.472×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Air kerma coefficient, K_{air} : 1.472×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 5.207×10^{-14} [Gy $\cdot$ kg/Bq $\cdot$ s]
Equilibrium dose constant for alphas, Δ_{α} : 0.000e+00 [Gy $\cdot$ kg/Bq $\cdot$ s]

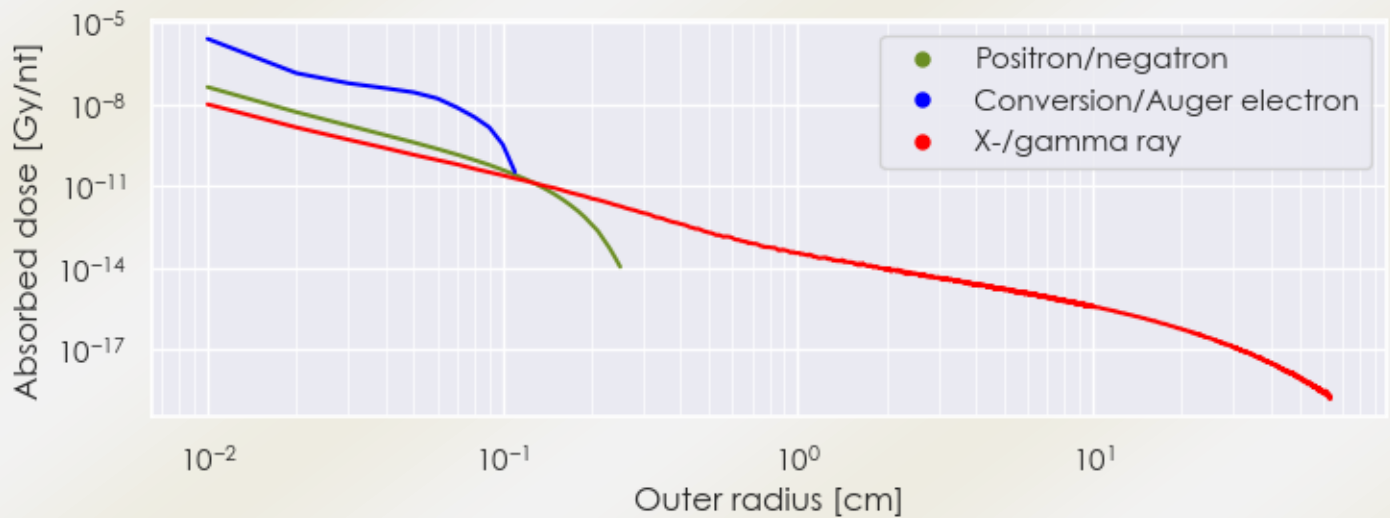
Equilibrium dose constant for betas/electrons, $\Delta_{\beta, \beta^+, e^-}$: 5.207×10^{-14} [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 1.344×10^{-14} [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

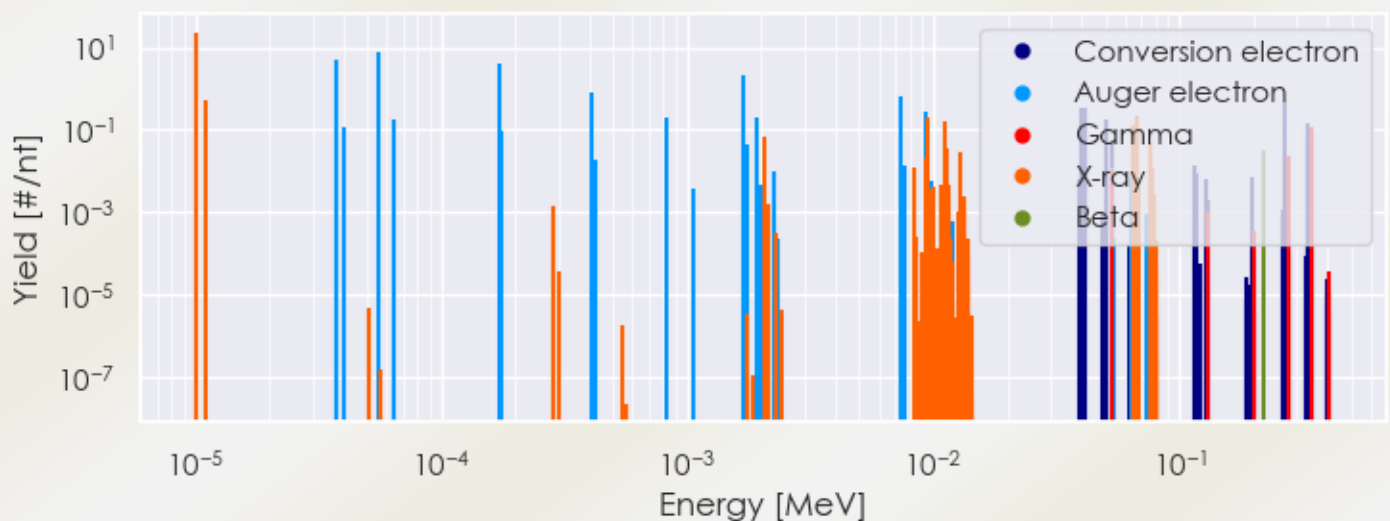
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



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

SUMMARY SPECTRA (PLOT)

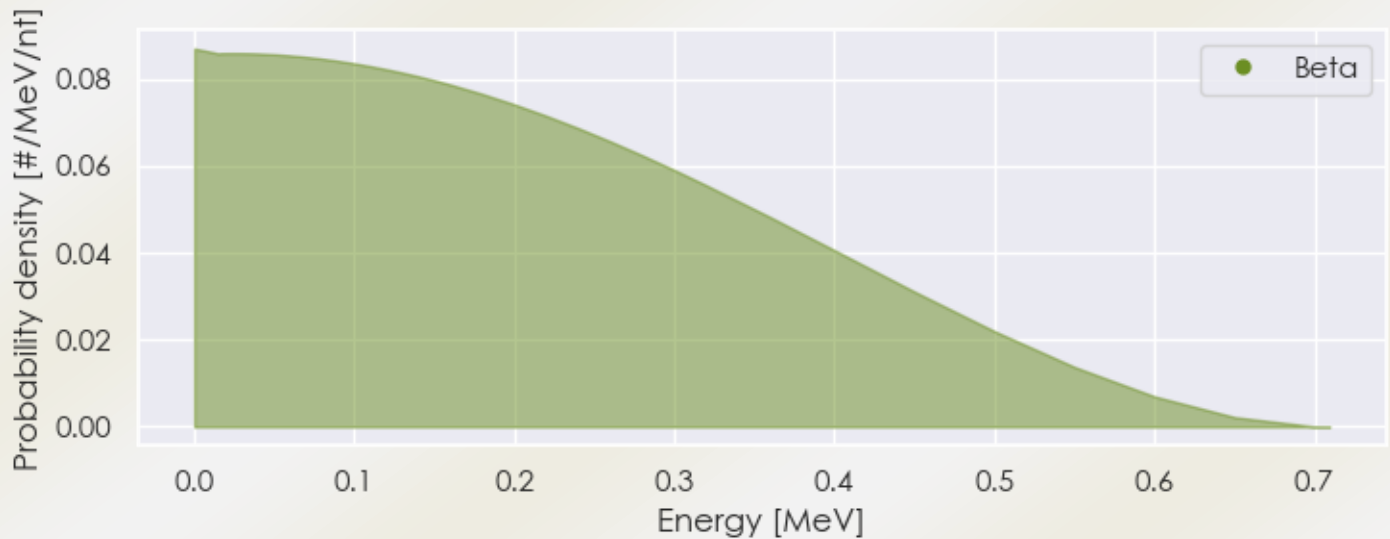
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



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

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
1.01444e-05	2.342e+01	X-ray
1.11103e-05	5.141e-01	X-ray
2.07074e-03	6.591e-02	X-ray
8.29381e-03	1.245e-02	X-ray
9.35460e-03	2.159e-02	X-ray
9.43801e-03	1.903e-01	X-ray
1.11006e-02	1.534e-01	X-ray
1.12510e-02	3.520e-02	X-ray
1.29799e-02	2.992e-02	X-ray

5.31000e-02	1.079e-02	Gamma
6.53020e-02	1.361e-01	X-ray
6.70480e-02	2.325e-01	X-ray
7.55931e-02	2.546e-02	X-ray
7.59780e-02	4.924e-02	X-ray
7.81028e-02	1.158e-02	X-ray
2.79000e-01	2.356e-02	Gamma
3.46500e-01	1.112e-01	Gamma
2.21828e-01	3.300e-02	Beta
3.74634e-05	4.986e+00	Auger electron
4.01470e-05	1.132e-01	Auger electron
5.59983e-05	8.054e+00	Auger electron
6.42936e-05	1.733e-01	Auger electron
1.71440e-04	4.257e+00	Auger electron
1.75171e-04	9.227e-02	Auger electron
4.09149e-04	7.769e-01	Auger electron
4.24142e-04	1.811e-02	Auger electron
8.19013e-04	2.021e-01	Auger electron
1.69961e-03	2.078e+00	Auger electron
1.76314e-03	4.525e-02	Auger electron
1.91247e-03	1.986e-01	Auger electron
7.30786e-03	6.320e-01	Auger electron
7.65422e-03	1.365e-02	Auger electron
9.35938e-03	2.609e-01	Auger electron
1.14393e-02	2.626e-02	Auger electron
3.97870e-02	3.530e-01	Conversion electron
4.15330e-02	3.580e-01	Conversion electron
5.04631e-02	1.854e-01	Conversion electron
5.27836e-02	1.271e-02	Auger electron
5.31000e-02	5.367e-02	Conversion electron
1.16224e-01	1.348e-02	Conversion electron
2.67885e-01	4.870e-01	Conversion electron
3.32638e-01	1.505e-01	Conversion electron
3.33187e-01	3.832e-02	Conversion electron
3.34933e-01	8.680e-02	Conversion electron
3.43863e-01	7.459e-02	Conversion electron
3.46500e-01	2.290e-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/SNMML-MAIN/iCore/Store/StoreLayouts/Item_Detail.aspx?iProductCode=0-932004-80-6