



GOLD-192

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Au-192
Atomic number (Z): 79
Mass number (A): 192
Neutron number (N): 113

RADIOACTIVE DECAY

Decay modes: β^+ , Electron capture
Half-life: 4.94 [h]
Decay constant: 3.8976×10^{-5} [1/s]
Daughters: Pt-192 (100.0%)
Radioactive daughters: None

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.09044 [MeV]
Mean photon energy: 1.93919 [MeV]
Air kerma rate constant, Γ_{10} : 6.666×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Air kerma coefficient, K_{air} : 6.867×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 1.449×10^{-14} [Gy $\cdot$ kg/Bq $\cdot$ s]
Equilibrium dose constant for alphas, Δ_{α} : 0.000×10^0 [Gy $\cdot$ kg/Bq $\cdot$ s]

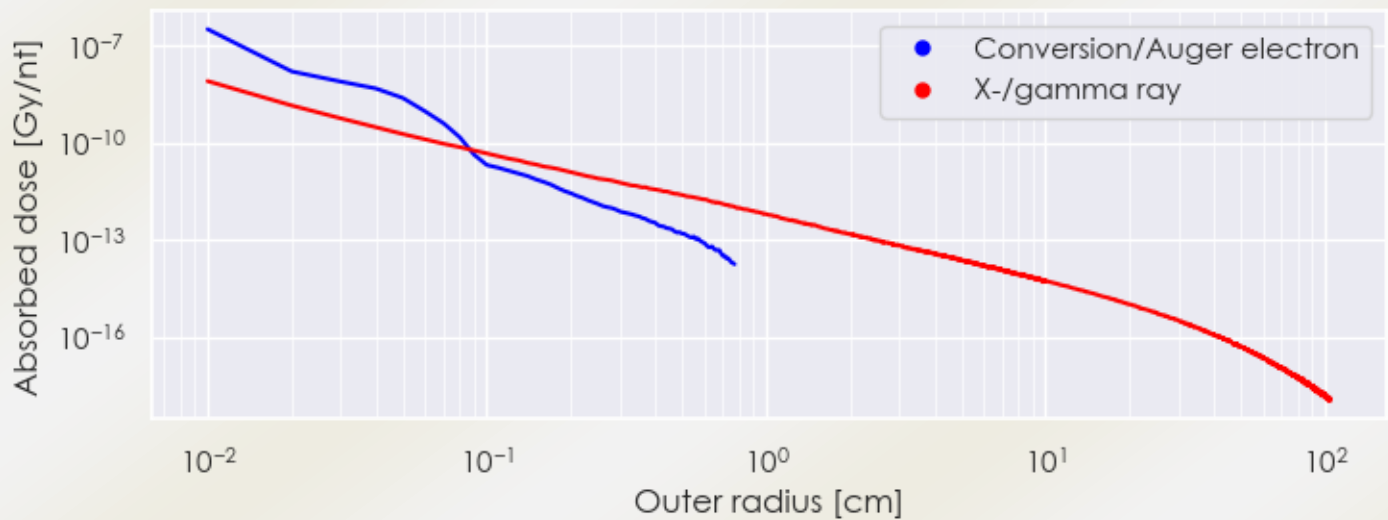
Equilibrium dose constant for betas/electrons, $\Delta_{\beta, \beta^+, e^-}$: 1.449e-14 [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 3.107e-13 [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

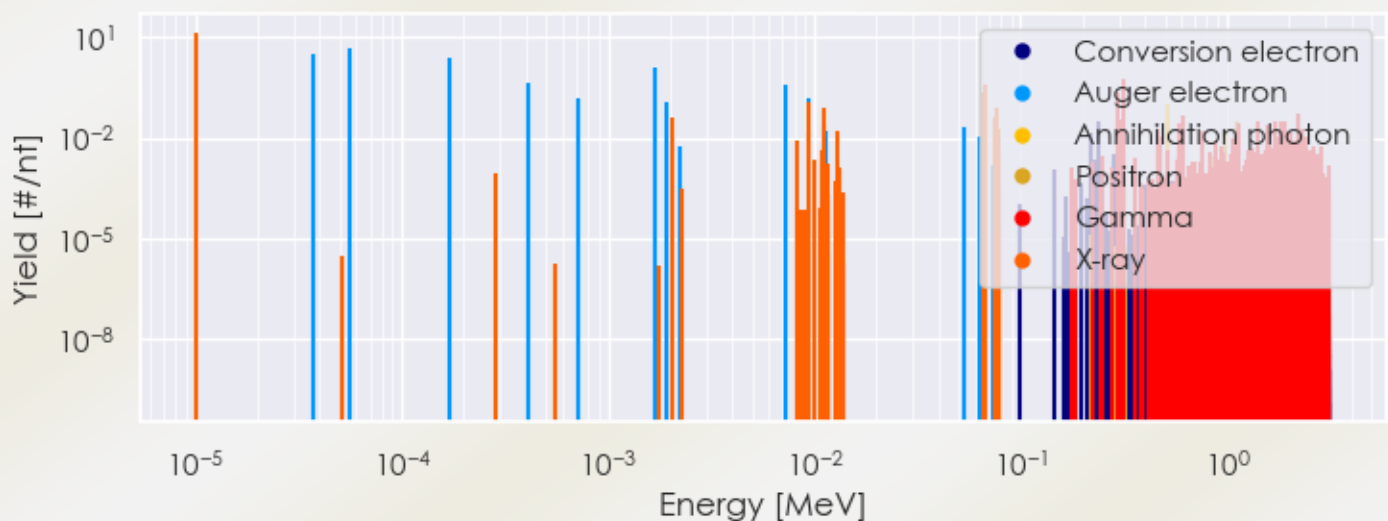
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Au-192 DPK.csv

SUMMARY SPECTRA (PLOT)

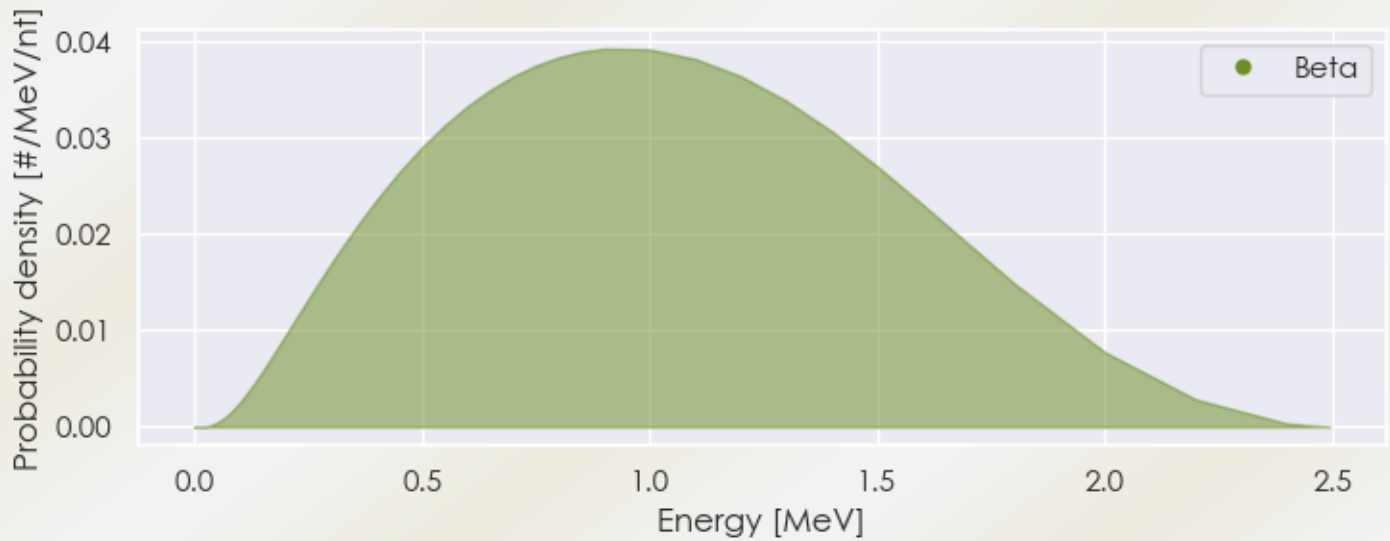
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/Au-192 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/Au-192 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/Au-192 Summary Spectrum.csv

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
1.01423e-05	1.405e+01	X-ray
2.06869e-03	3.979e-02	X-ray
9.35456e-03	1.380e-02	X-ray
9.43805e-03	1.217e-01	X-ray
1.11006e-02	7.644e-02	X-ray
1.12510e-02	2.250e-02	X-ray
1.29799e-02	1.492e-02	X-ray
6.53020e-02	2.277e-01	X-ray
6.70480e-02	3.891e-01	X-ray
7.55931e-02	4.262e-02	X-ray

7.59780e-02	8.242e-02	X-ray
7.81028e-02	1.938e-02	X-ray
2.95957e-01	2.233e-01	Gamma
3.08455e-01	3.445e-02	Gamma
3.16506e-01	5.800e-01	Gamma
4.68069e-01	1.746e-02	Gamma
4.77060e-01	1.079e-02	Gamma
5.11000e-01	1.040e-01	Annihilation photon
5.82630e-01	2.680e-02	Gamma
6.04411e-01	1.009e-02	Gamma
6.12462e-01	4.338e-02	Gamma
7.59060e-01	1.653e-02	Gamma
1.12280e+00	1.102e-02	Gamma
1.12701e+00	1.462e-02	Gamma
1.12701e+00	1.462e-02	Gamma
1.14038e+00	2.610e-02	Gamma
1.42298e+00	2.975e-02	Gamma
1.57655e+00	2.262e-02	Gamma
1.62440e+00	1.670e-02	Gamma
1.70658e+00	1.920e-02	Gamma
1.72307e+00	3.109e-02	Gamma
1.78660e+00	1.102e-02	Gamma
1.83284e+00	3.190e-02	Gamma
1.92121e+00	3.248e-02	Gamma
1.94081e+00	1.624e-02	Gamma
2.01923e+00	1.479e-02	Gamma
2.23689e+00	5.568e-02	Gamma
2.31937e+00	1.566e-02	Gamma
2.33570e+00	1.740e-02	Gamma
2.42287e+00	1.125e-02	Gamma
9.84750e-01	1.604e-02	Positron
1.12600e+00	3.208e-02	Positron
3.74689e-05	2.991e+00	Auger electron
5.59339e-05	4.831e+00	Auger electron
1.71215e-04	2.544e+00	Auger electron
4.06020e-04	4.576e-01	Auger electron
7.13910e-04	1.600e-01	Auger electron
1.69613e-03	1.255e+00	Auger electron

1.90669e-03	1.194e-01	Auger electron
7.25512e-03	3.819e-01	Auger electron
9.30453e-03	1.575e-01	Auger electron
1.13822e-02	1.584e-02	Auger electron
5.27836e-02	2.127e-02	Auger electron
6.32891e-02	1.139e-02	Auger electron
2.17342e-01	1.464e-02	Conversion electron
2.37891e-01	3.117e-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