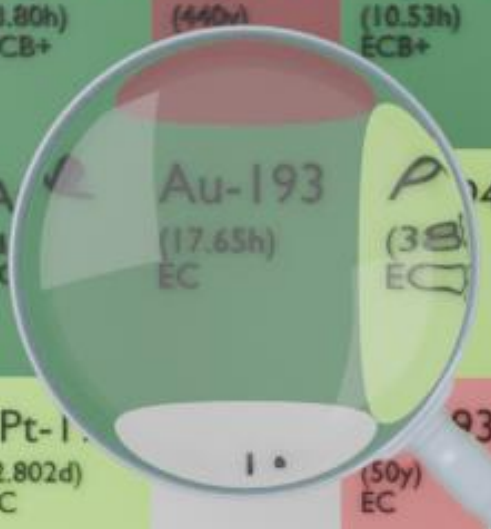




Hg-170 (20.0m) ECB+	Hg-172 (4.85h) EC	Hg-173 (3.80h) ECB+	Hg-174 (440m) EC	Hg-175 (10.53h) ECB+	Hg-176 (STABLE)	Hg-177 (64.94h) EC	Hg-178 (STABLE)
Au-190 (42.8m) ECB+	Au-191 (3.18h) ECB+	Au-192 (4.01h) EC	Au-193 (17.65h) EC	Au-194 (38.1h) EC	Au-195 (186.098d) EC	Au-196 (6.183d) ECB-	Au-197 (STABLE)
Pt-188 (10.2d) CA	Pt-189 (10.87h) ECB+	Pt-190 (6.50E+11y) A	Pt-191 (2.802d) EC	Pt-192 (50y) EC	Pt-194 (STABLE)	Pt-195 (STABLE)	Pt-196 (STABLE)

GOLD-193

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Au-193
Atomic number (Z): 79
Mass number (A): 193
Neutron number (N): 114

RADIOACTIVE DECAY

Decay modes: Electron capture
Half-life: 17.65 [h]
Decay constant: 1.0909×10^{-5} [1/s]
Daughters: Pt-193 (100.0%)
Radioactive daughters: Pt-193

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.0575 [MeV]
Mean photon energy: 0.16734 [MeV]
Air kerma rate constant, Γ_{10} : 1.442×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Air kerma coefficient, K_{air} : 1.442×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 9.213×10^{-15} [Gy $\cdot$ kg/Bq $\cdot$ s]
Equilibrium dose constant for alphas, Δ_{α} : $0.000 \times 10^{+00}$ [Gy $\cdot$ kg/Bq $\cdot$ s]

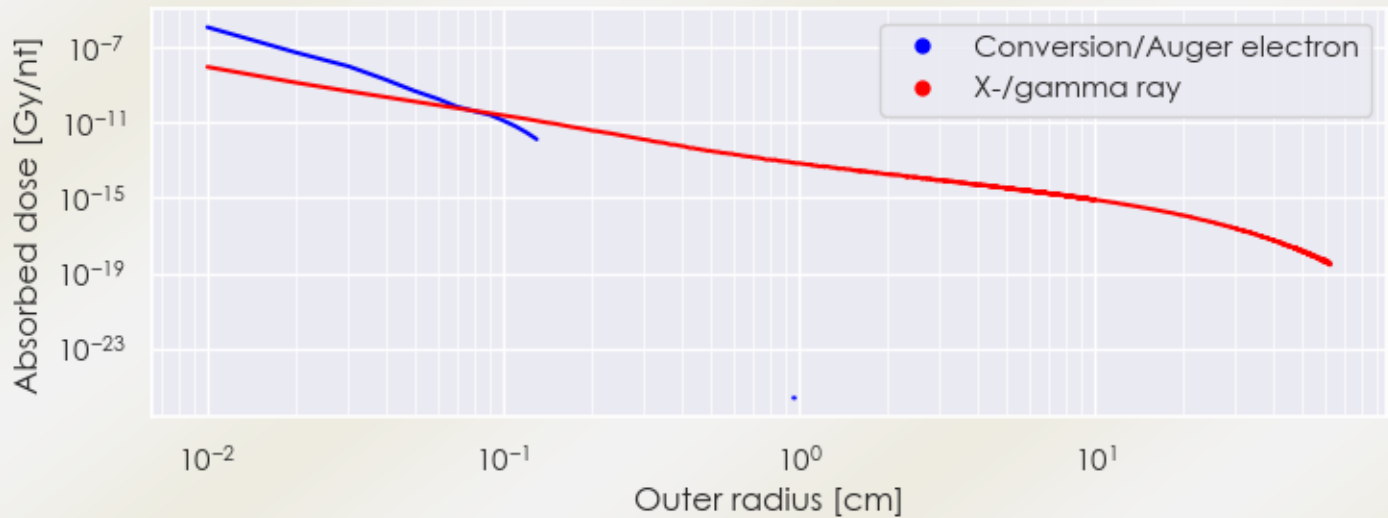
Equilibrium dose constant for betas/electrons, $\Delta_{\beta,\beta^+,e^-}$: 9.213×10^{-15} [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 2.681×10^{-14} [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

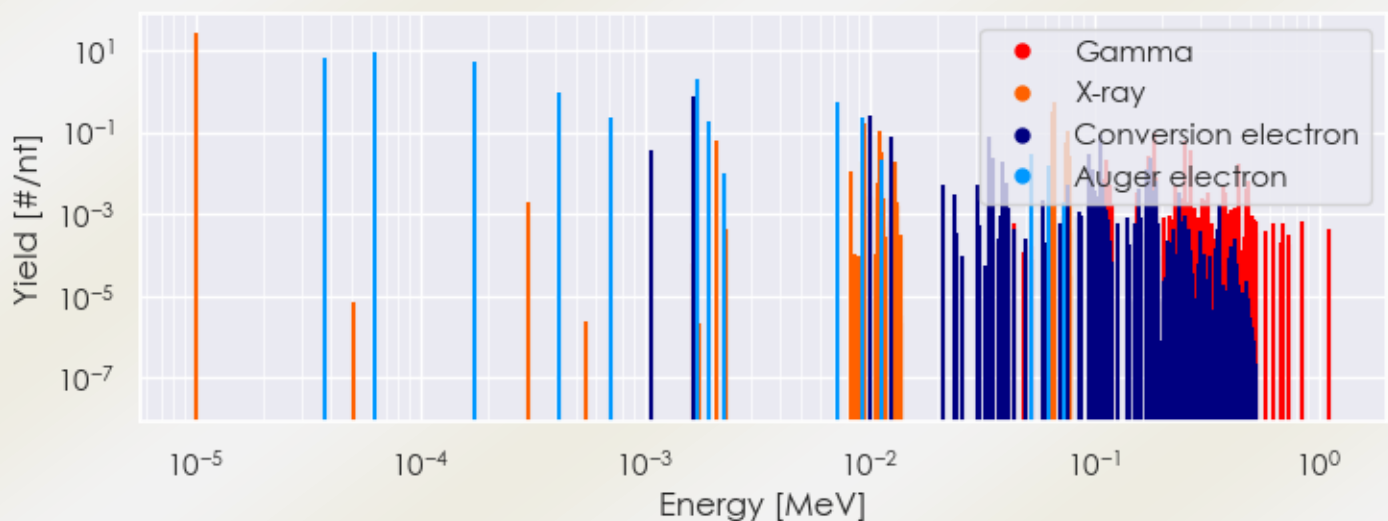
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Au-193 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-193 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/Au-193 Summary Spectrum.csv](http://www.mirdsoft.org/products/MIRDspecs/Au-193%20Summary%20Spectrum.csv)

Energy [MeV]	Yield [# / n _t] if > 0.01	Radiation type
1.01448e-05	2.775e+01	X-ray
2.07551e-03	6.243e-02	X-ray
8.29380e-03	1.129e-02	X-ray
9.35457e-03	1.959e-02	X-ray
9.43805e-03	1.727e-01	X-ray
1.11006e-02	1.020e-01	X-ray
1.12510e-02	3.193e-02	X-ray
1.29799e-02	1.990e-02	X-ray
6.53020e-02	3.058e-01	X-ray
6.70480e-02	5.225e-01	X-ray
7.55931e-02	5.724e-02	X-ray
7.59780e-02	1.107e-01	X-ray
7.80108e-02	1.334e-02	X-ray
7.81028e-02	2.602e-02	X-ray
1.12515e-01	2.170e-02	Gamma
1.73520e-01	2.700e-02	Gamma
1.86170e-01	9.369e-02	Gamma
2.55570e-01	6.237e-02	Gamma
2.68220e-01	3.618e-02	Gamma
4.39040e-01	1.782e-02	Gamma
3.75007e-05	6.514e+00	Auger electron
6.24247e-05	9.080e+00	Auger electron
1.73813e-04	5.377e+00	Auger electron
4.14820e-04	9.558e-01	Auger electron
7.05817e-04	2.236e-01	Auger electron
1.06700e-03	3.574e-02	Conversion electron
1.64200e-03	7.289e-01	Conversion electron

1.70495e-03	1.968e+00	Auger electron
1.92515e-03	1.899e-01	Auger electron
7.23912e-03	5.337e-01	Auger electron
9.28751e-03	2.200e-01	Auger electron
9.99710e-03	2.539e-01	Conversion electron
1.13638e-02	2.212e-02	Auger electron
1.26340e-02	7.784e-02	Conversion electron
3.39000e-02	8.034e-02	Conversion electron
3.55400e-02	2.413e-02	Conversion electron
3.93750e-02	1.839e-02	Conversion electron
5.27836e-02	2.857e-02	Auger electron
6.32891e-02	1.530e-02	Auger electron
9.49050e-02	2.945e-02	Conversion electron
9.86530e-02	1.205e-02	Conversion electron
1.07555e-01	8.526e-02	Conversion electron
1.72308e-01	1.273e-02	Conversion electron
1.76955e-01	2.274e-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