



Fig-170 (20.0m) ECB+	Fig-172 (4.85h) EC	Fig-173 (3.80h) ECB+	Fig-174 (440m) EC	Fig-175 (10.53h) ECB+	Fig-176 (STABLE)	Fig-177 (64.94h) EC	Fig-178 (STABLE)
Au-190 (42.8m) ECB+	Au-191 (3.18h) ECB+	Au-192 (4.0h) EC	Au-193m (3.9s) ITEC	Au-194 (38h) 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-193M

SUMMARY DATA

GENERAL

CLASSIFICATION

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

RADIOACTIVE DECAY

Decay modes: Electron capture, Internal transition
Half-life: 3.9 [s]
Decay constant: 1.7773e-01 [1/s]
Daughters: Au-193 (100.0%), Pt-193m (0.03%)
Radioactive daughters: Au-193, Pt-193m

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.09039 [MeV]
Mean photon energy: 0.1979 [MeV]
Air kerma rate constant, Γ_{10} : 1.516e-17 [Gy·m²/Bq·s]
Air kerma coefficient, K_{air} : 1.516e-17 [Gy·m²/Bq·s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 1.448e-14 [Gy·kg/Bq·s]
Equilibrium dose constant for alphas, Δ_{α} : 0.000e+00 [Gy·kg/Bq·s]

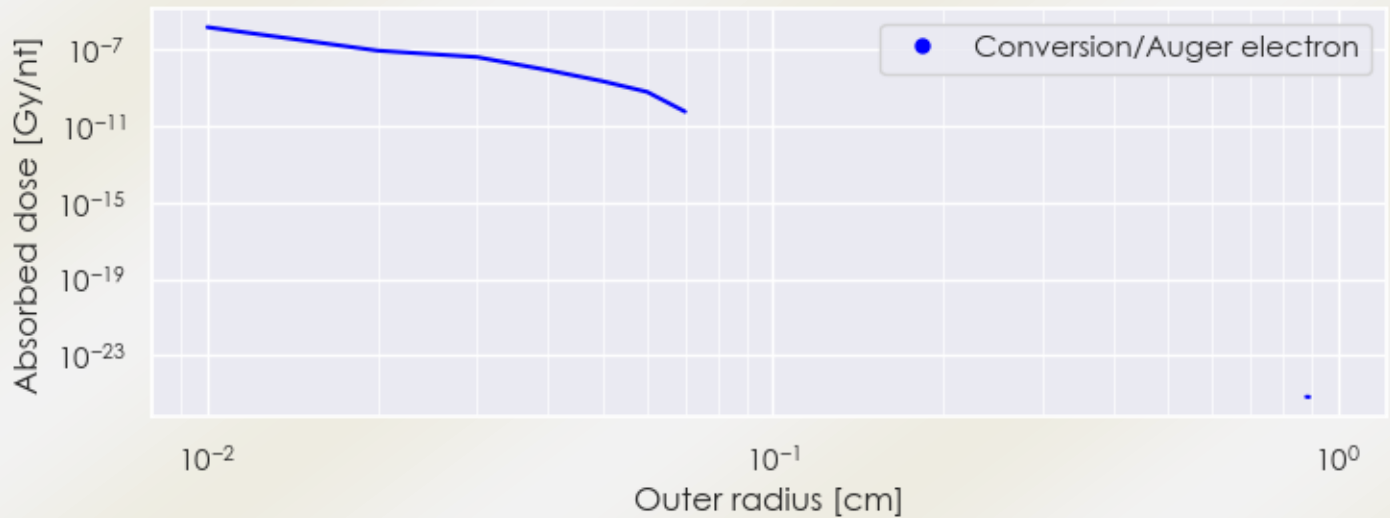
Equilibrium dose constant for betas/electrons, $\Delta_{\beta,\beta^+,e^-}$: 1.448e-14 [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 3.171e-14 [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

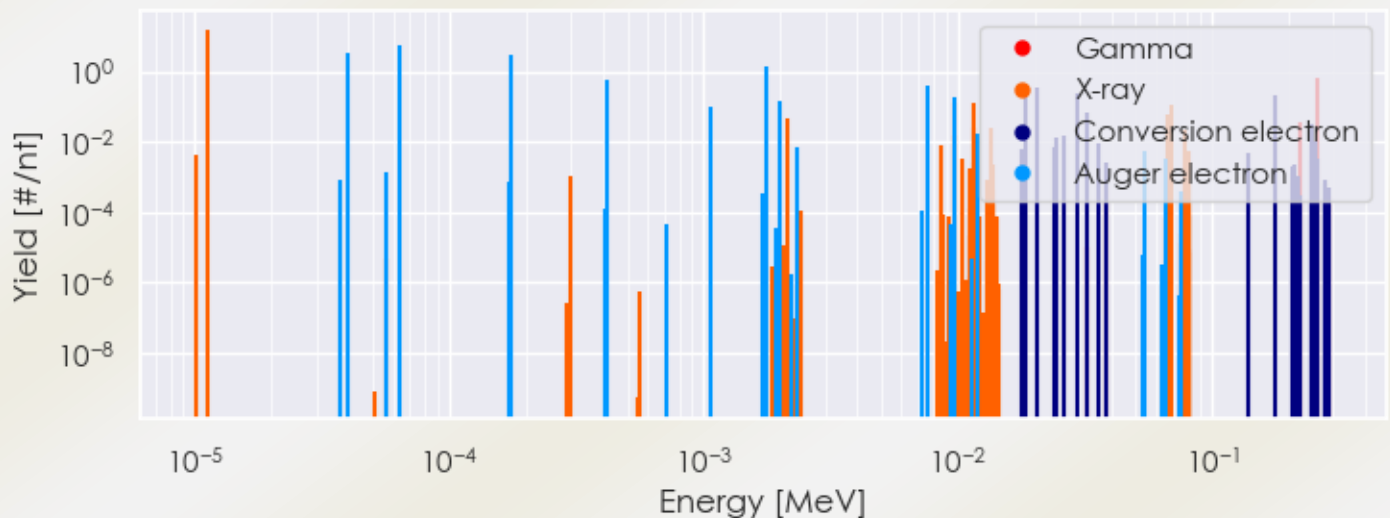
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



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

Energy [MeV]	Yield [#]/nt] if > 0.01	Radiation type
1.11045e-05	1.615e+01	X-ray
2.14870e-03	4.864e-02	X-ray
9.62131e-03	1.478e-02	X-ray
9.70979e-03	1.302e-01	X-ray
1.14753e-02	1.235e-01	X-ray
1.15870e-02	2.432e-02	X-ray
1.34225e-02	2.438e-02	X-ray
6.71839e-02	6.441e-02	X-ray
6.90380e-02	1.096e-01	X-ray
7.78158e-02	1.206e-02	X-ray
7.82261e-02	2.333e-02	X-ray
2.19750e-01	3.769e-02	Gamma
2.57970e-01	6.588e-01	Gamma
4.01436e-05	3.551e+00	Auger electron
6.41258e-05	5.444e+00	Auger electron
1.74826e-04	2.896e+00	Auger electron
4.19004e-04	5.616e-01	Auger electron
1.06129e-03	9.628e-02	Auger electron
1.76021e-03	1.430e+00	Auger electron
1.98407e-03	1.488e-01	Auger electron
7.54143e-03	4.248e-01	Auger electron
9.67263e-03	1.788e-01	Auger electron
1.18318e-02	1.824e-02	Auger electron
1.84340e-02	3.299e-01	Conversion electron
2.02880e-02	3.554e-01	Conversion electron
2.44440e-02	1.408e-02	Conversion electron
2.62980e-02	1.449e-02	Conversion electron

2.94760e-02	2.326e-01	Conversion electron
3.22100e-02	7.064e-02	Conversion electron
1.77010e-01	2.226e-01	Conversion electron
2.43634e-01	3.314e-02	Conversion electron
2.55236e-01	1.051e-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