Hands-on exercise
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Exercise with formula $\Gamma = f_{E1}\, E\gamma^3\, D_0$

The ^{196}Pt nucleus has captured an s-wave neutron.
The average spacing at S_n= 5.840 MeV is D_0 = 153 eV,
and the γSF for E1 transitions have been measured (see table below).
In addition, the total average gamma-width is assumed to be $\langle\Gamma\gamma\rangle$ = 120 meV.

a) *What is the excitation energy, spin and parity of the initial state of ^{197}Pt?*

b) *Draw the possible E1 transitions to the states shown in the table.*

c) *Calculate the summed partial E1 widths into the states shown in the table.*

d) *If we assume all other transitions go to the quasi-continuum, what is the partial gamma-width into the quasi-continuum region?*

Table

Ex(MeV)	Jπ	Eγ (MeV)	$f_{E1}(MeV^{-3})10^{-7}$	Γ(meV)
0.000	1/2-	5.840	5.650	?
0.053	5/2-	5.787	6.013	?
0.072	3/2-	5.768	5.830	?
0.099	3/2-	5.741	5.830	?
0.131	1/2-	5.700	5.830	?
0.269	1/2-	5.500	5.350	?

TOTAL =