22.01 - Recitation #4

- Please grab a snack, get up off the sofa, look at something that isn’t a screen for 5 mins!
- Please turn on your video (if possible) and mute yourself.
- These slides are at: bit.ly/2201Rec4
Outline + Intended Learning Outcomes (ILOs)

- Half life
- Decay const.
- Activity
- Activity (two nuclides)
- Activity (i nuclides)
Half life

\[ t_{1/2} = \frac{\ln(2)}{\lambda} \]

Fig. 4.1 Exponential radioactivity decay law, showing relative activity, \( A/A_0 \), as a function of time \( t \); \( \lambda \) is the decay constant and \( T \) the half-life.
Decay constant

\[ \frac{A}{A_0} = e^{-\lambda t} \]

\[ \lambda = \frac{0.693}{T} \]

Fig. 4.1 Exponential radioactivity decay law, showing relative activity, \( \frac{A}{A_0} \), as a function of time \( t \); \( \lambda \) is the decay constant and \( T \) the half-life.
Activity

\[ A(t) = A_0 e^{-\lambda t} \]

Fig. 4.1 Exponential radioactivity decay law, showing relative activity, \( \frac{A}{A_0} \), as a function of time \( t \); \( \lambda \) is the decay constant and \( T \) the half-life.
Specific Activity
Activity (two nuclides)
Activity (i nuclides)
“Activity Activity”

Last week at Recitation I had 22.01 Ci of an isotope

This week at Recitation I have 10.22 Ci of the isotope

What is the half life of the isotope?
Outline + Intended Learning Outcomes (ILOs)

- Half life
- Decay const.
- Activity
- Activity (two nuclides)
- Activity (i nuclides)
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Office Hour 3-5pm Monday

Questions?

Please grab a snack, get up off the sofa, look at something that isn’t a screen for ~X mins!