Effect of Corner Reflection on the Critical Mass of Plutonium

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It’s not tight fitting – what can we credit?

- Pu in a corner
- Pu in a box
- Single material comparisons
- Relationship between partially reflected mass and 4 Pi masses
Corner Reflection

![Graph showing the relationship between critical mass (Kg) and reflector thickness (cm) for different materials: Concrete, HDPE, BeO, H2O, and KYNAR.](image-url)
Pu in a box: moderators

![Graph showing critical mass versus reflector thickness for different moderators: HDPE, Graphite, BeO, Beryllium, and Water. The graph indicates the decrease in critical mass as the reflector thickness increases.]
Box vs 4 Pi

\[ y = 0.0589x + 0.4036 \]

\[ R^2 = 0.9092 \]
Corner vs 4 Pi

\[ y = 0.9511x + 0.1754 \]

\[ R^2 = 0.9972 \]
What Next?

- Add more reflectors to corner data
- When does a box become a corner?
- Would the box correlation be better in terms of absolute size rather than relative?
- Figure out Box outliers