\[ M_{70}^2 = \frac{M_n^2}{(M_{70}^n R)^n} \]

If \( M_{70} \approx 13 \text{ TeV} \), then the LHC could be able to detect gravitons escaping into extra dimensions.

\[ R^4 = M_n^4 (M_{70})^{-2(n+2)} \]

\[ R = \frac{1}{M_n} \left( \frac{M_{70}}{M_n} \right)^{2/n} \]

\[ \approx \frac{1}{13 \text{ TeV}} \left( \frac{10^{16}}{13} \right)^{2/n} \]

\[ \approx 0.0769 \text{ (TeV)}^{-1} \times (5.91 \times 10^{11})^{2/n} \]

\[ R = 0.0769 \times (5.91 \times 10^{11})^{1/6} \text{ TeV}^{-1} \]

Converting \( 1 \text{ TeV}^{-1} \) to \( 2 \times 10^{17} \text{ cm} \):

\[ R = (1.53 \times 10^{-17})(5.91 \times 10^{11})^{1/6} \text{ cm} \]

\[ n = 1 : R \approx 10^{-13} \text{ cm} \]

*The existence of this large dimension would have noticeable effects on Newtonian gravity at the solar system scale, which have not been detected.*

\[ n = 2 : R \approx 0.0117 \text{ cm} = 117 \mu\text{m} \]

#The size of these dimensions already pushes at the limit of our most sensitive tests of gravity on small scales.*