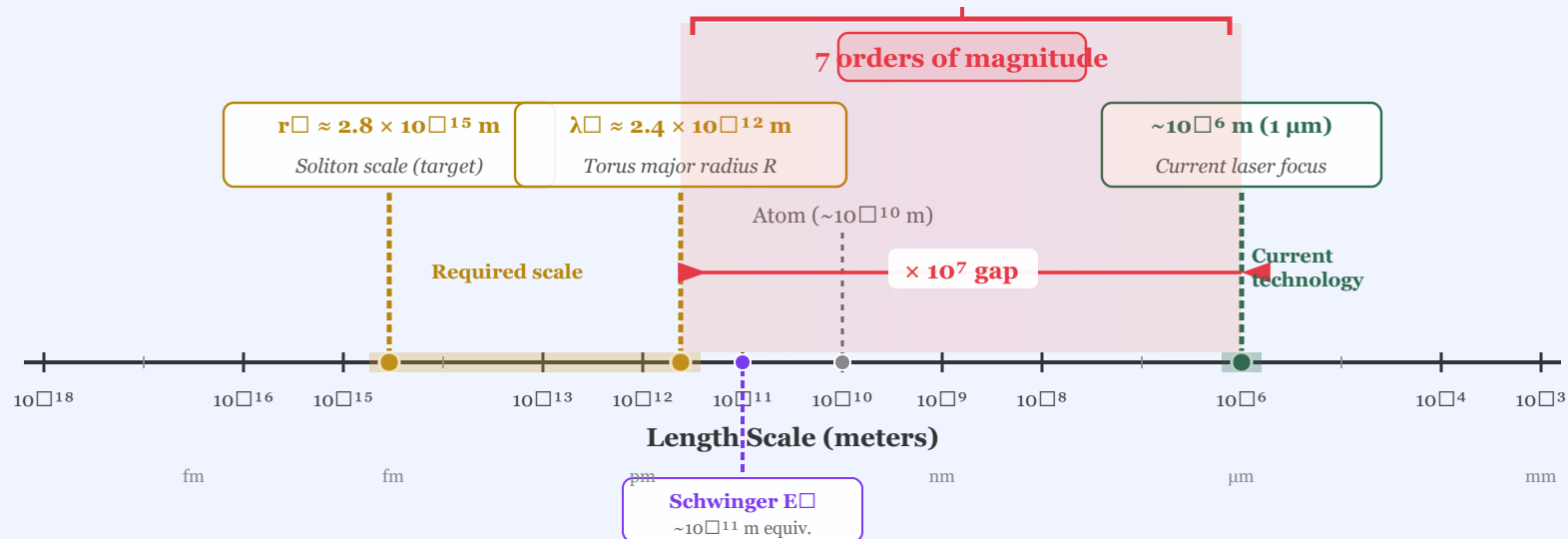


Scale Comparison – Experimental Gap for Soliton Creation



Field Strength Gap

Current lasers: $\sim 10^{23} \text{ W/cm}^2$

Schwinger limit: $\sim 10^{29} \text{ W/cm}^2$

6 orders of magnitude
in field strength

Bridging the Gap

Direct focusing: requires $\times 10^7$ improvement in spatial resolution – not feasible with current diffraction-limited optics.

Self-compression mechanism needed to bridge this gap

Figure 9: Scale comparison – experimental gap between current laser technology and soliton creation requirements

Seven orders of magnitude in spatial scale and six in field strength must be bridged