

- 38** Emission of light by any object depends on some of the electrons in its atoms dropping from unstable, high energy states to lower energy states.

In a laser, a difference is that there must be a metastable state in which high energy electrons can pause before dropping back to a low energy state.

What are typical times for electrons to remain in unstable and metastable states?

	unstable	metastable
A	10^{-7} s	10^{-6} s
B	10^{-7} s	10^{-3} s
C	10^{-4} s	10^{-1} s
D	10^{-4} s	10 s