

Qualitative understanding of many-electron atoms

1. centr. field  $\Upsilon(r)$  "close" to  $+Ze$  nucleus

the ratio  $R(r)$

$$R(r) = \frac{\Upsilon(r)}{V(r)} = \frac{\Upsilon(r)}{-\frac{Ze^2}{r}}$$

is such that close to nucleus,  $R(r \rightarrow 0) \rightarrow 1 - \frac{5}{16Z} \approx 1$  while for large  $r$   
 $R(r \rightarrow \infty) \rightarrow \frac{1}{Z}$

