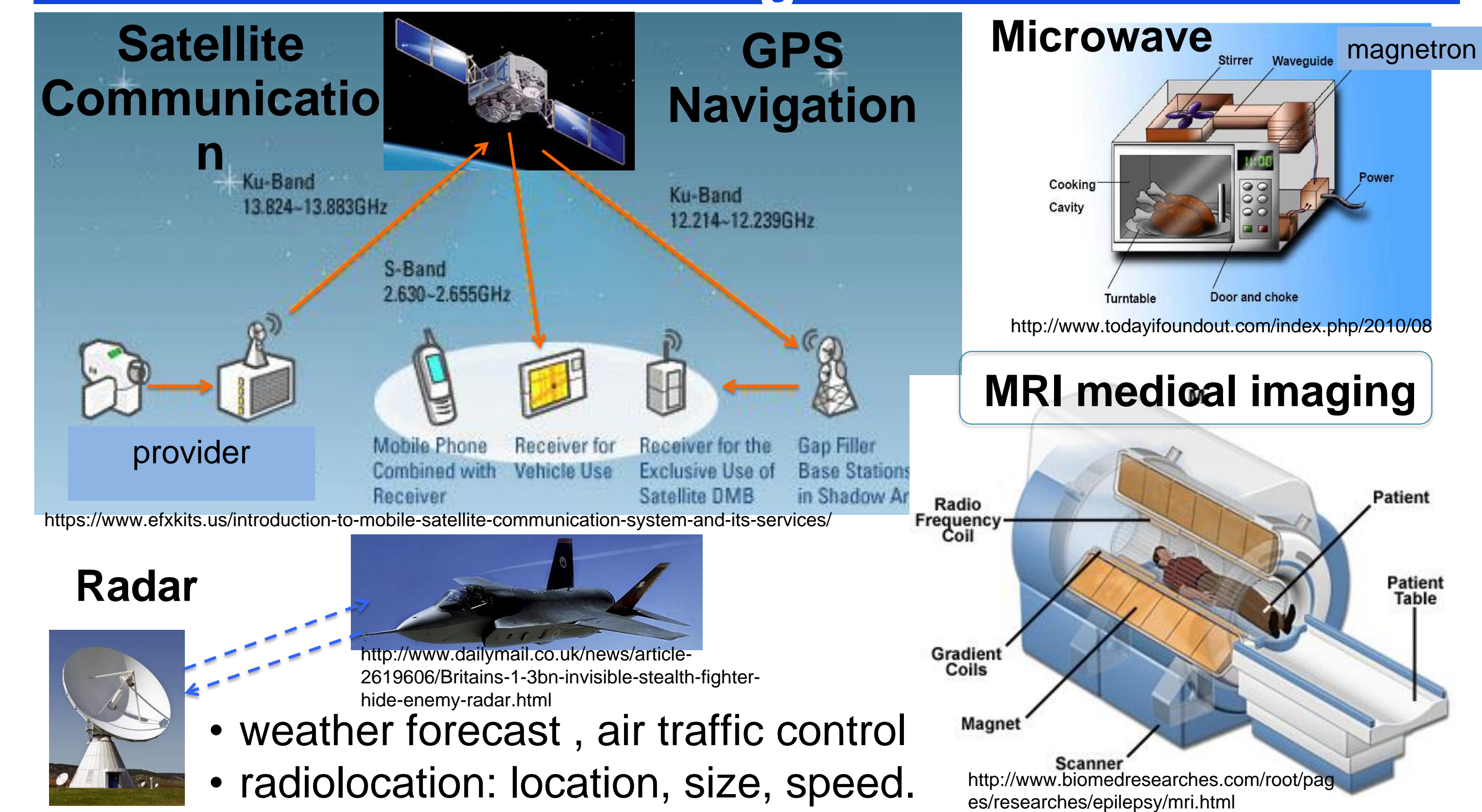
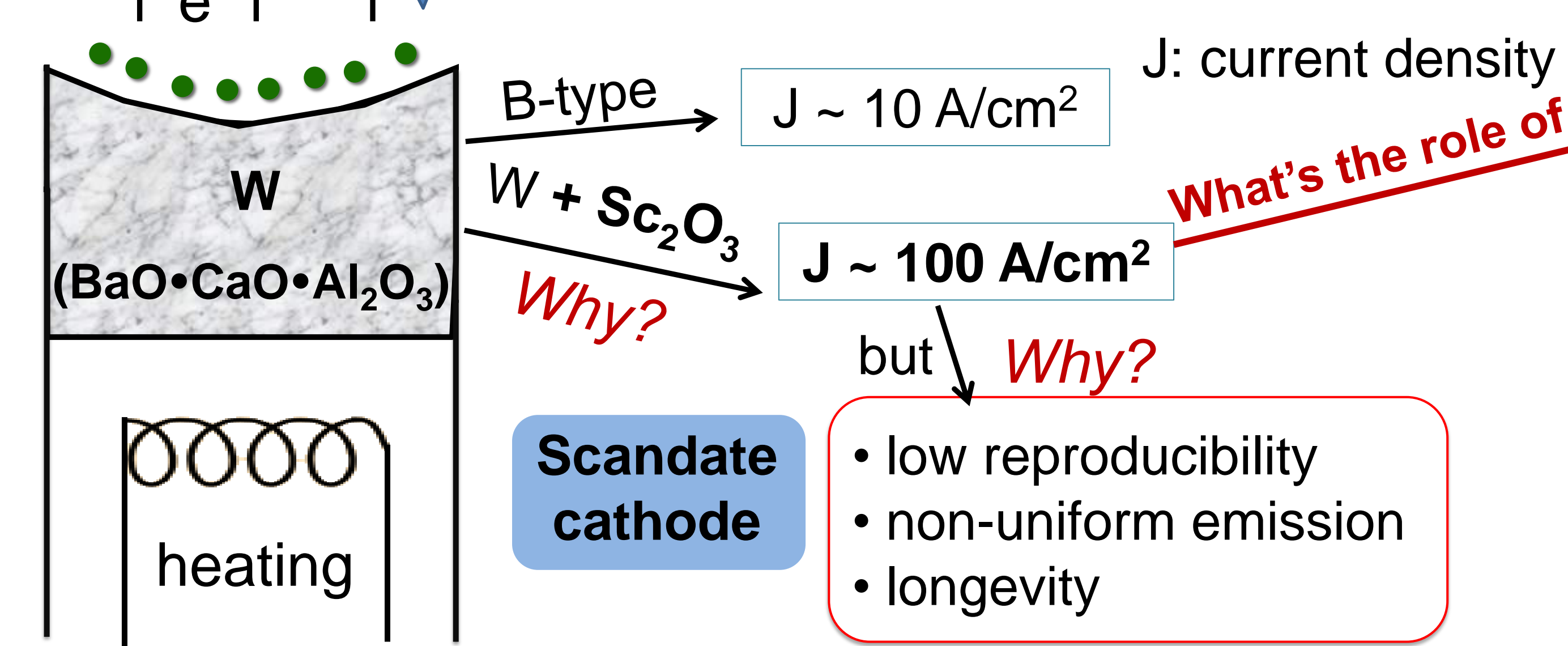


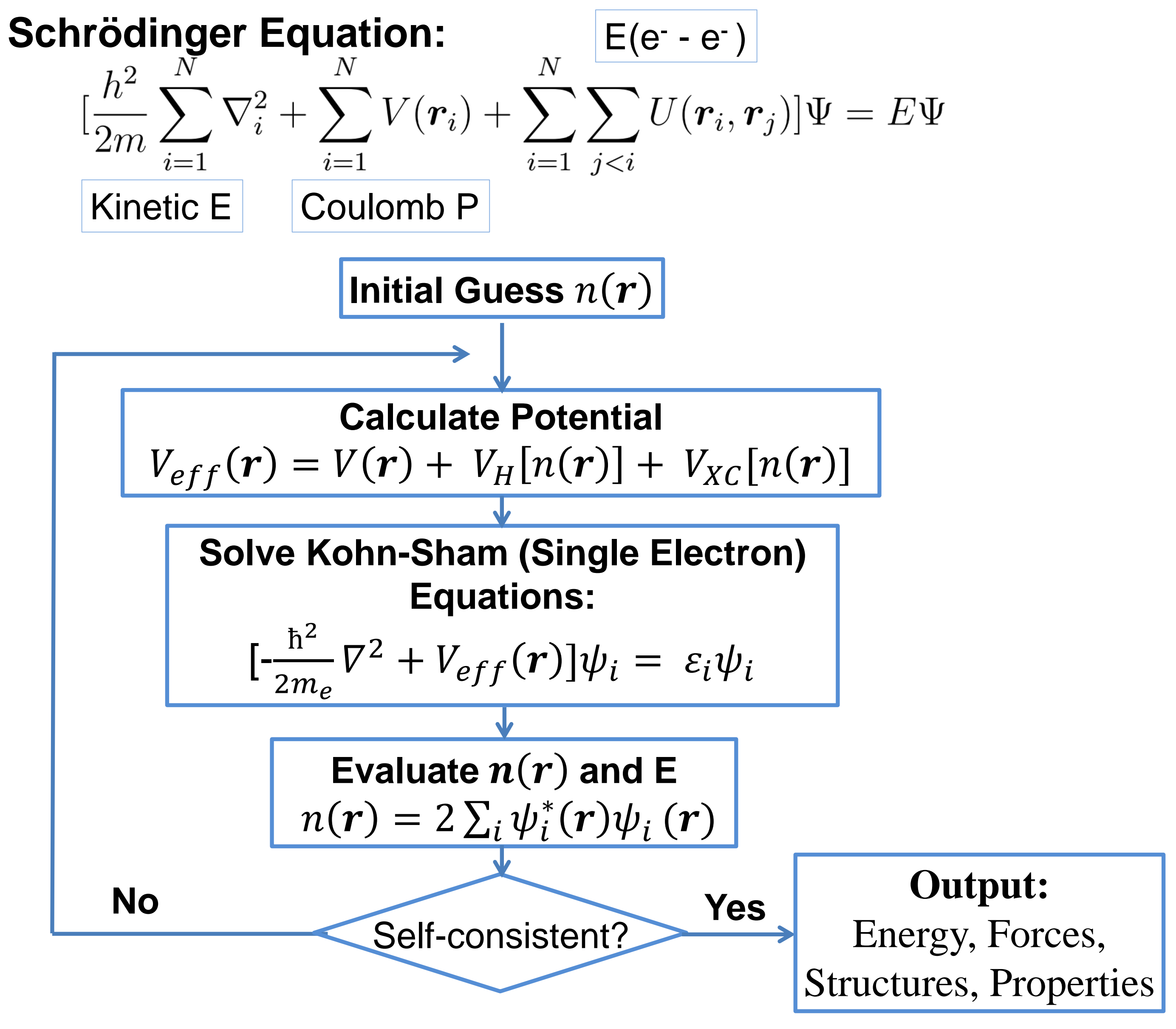
1. Background



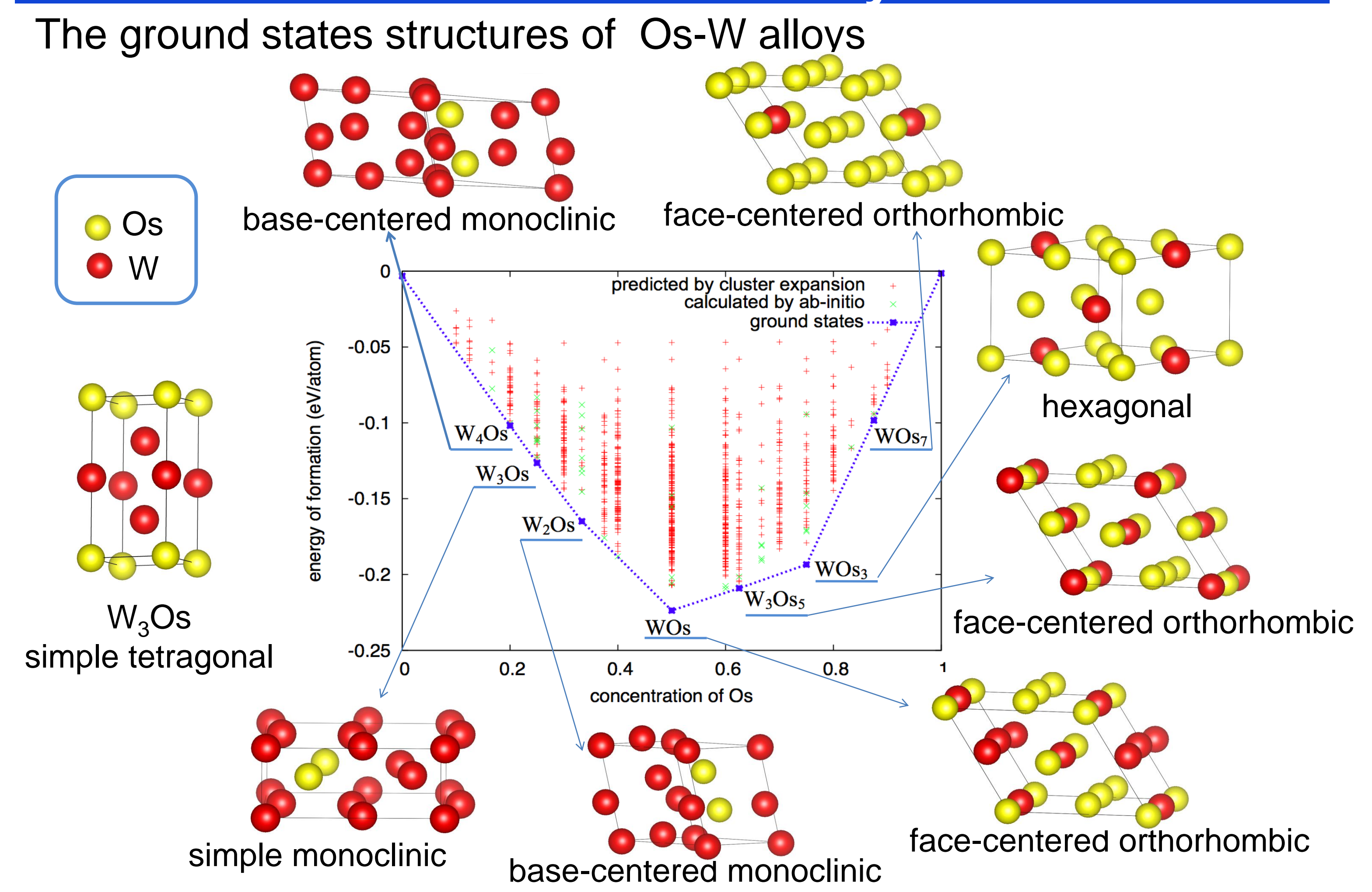
High power electromagnetic wave signal
 Need high-J e⁻ beam to amplify signal



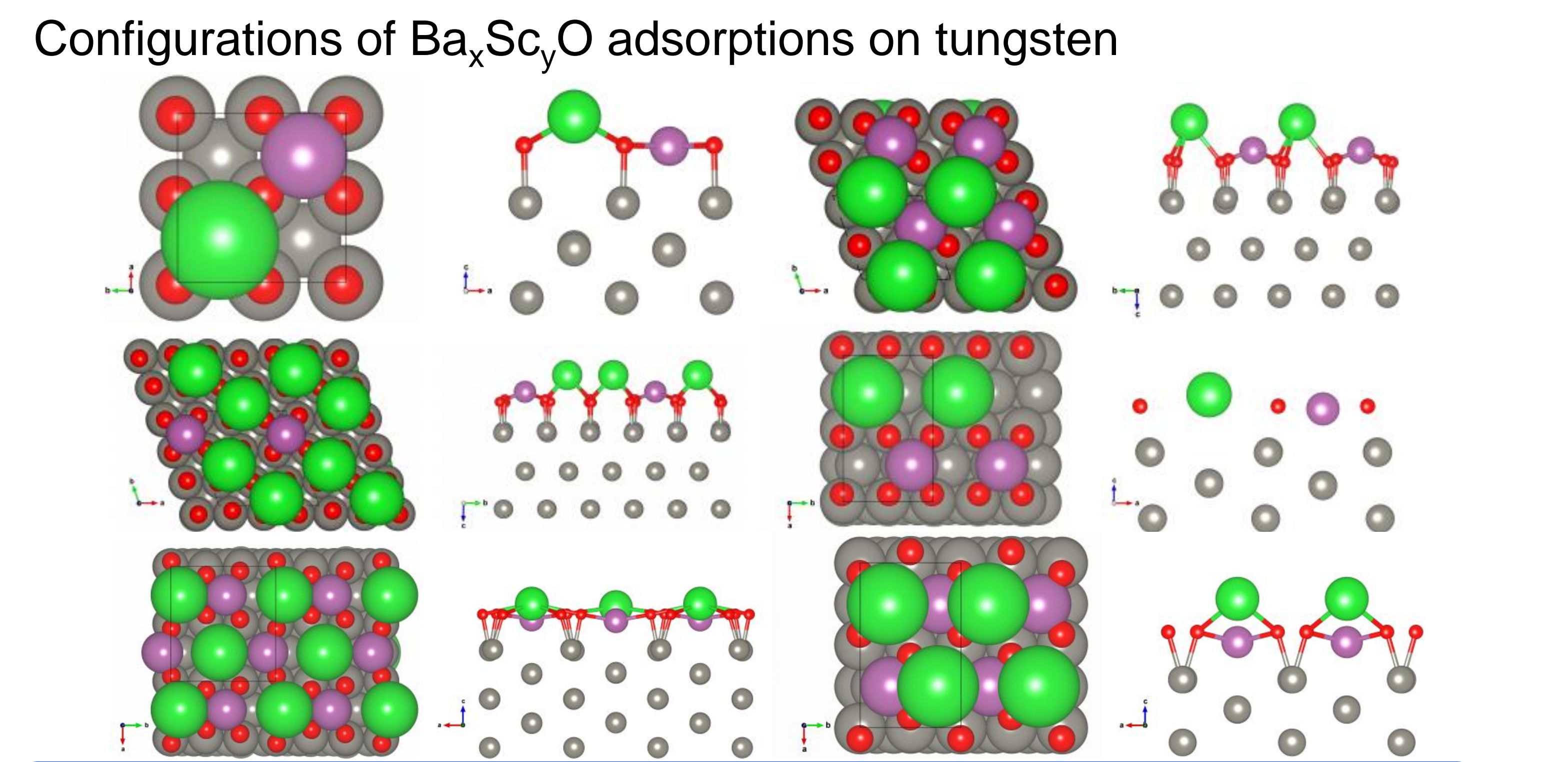
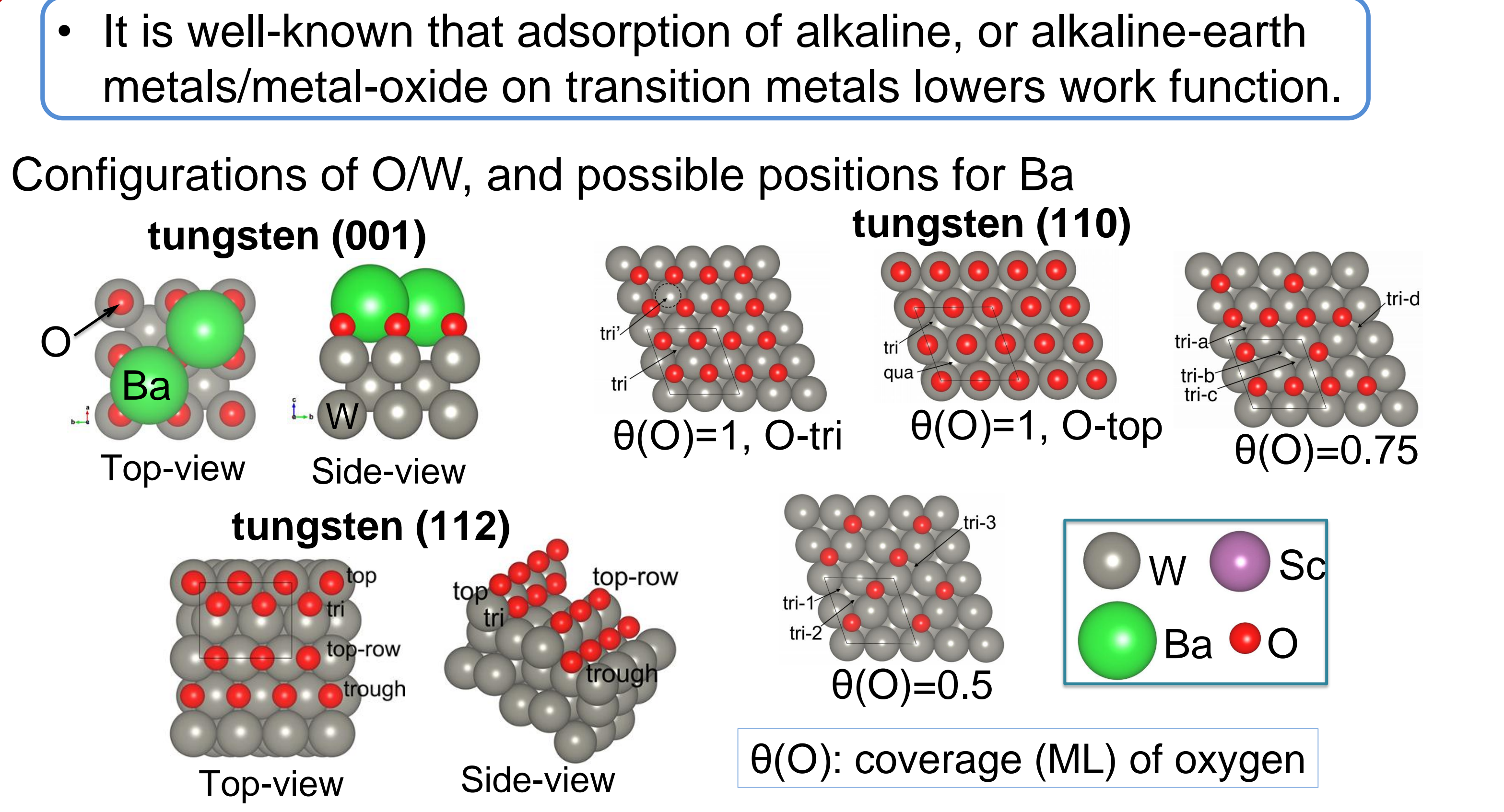
2. Computational Process



3. Materials Discovery--Bulk



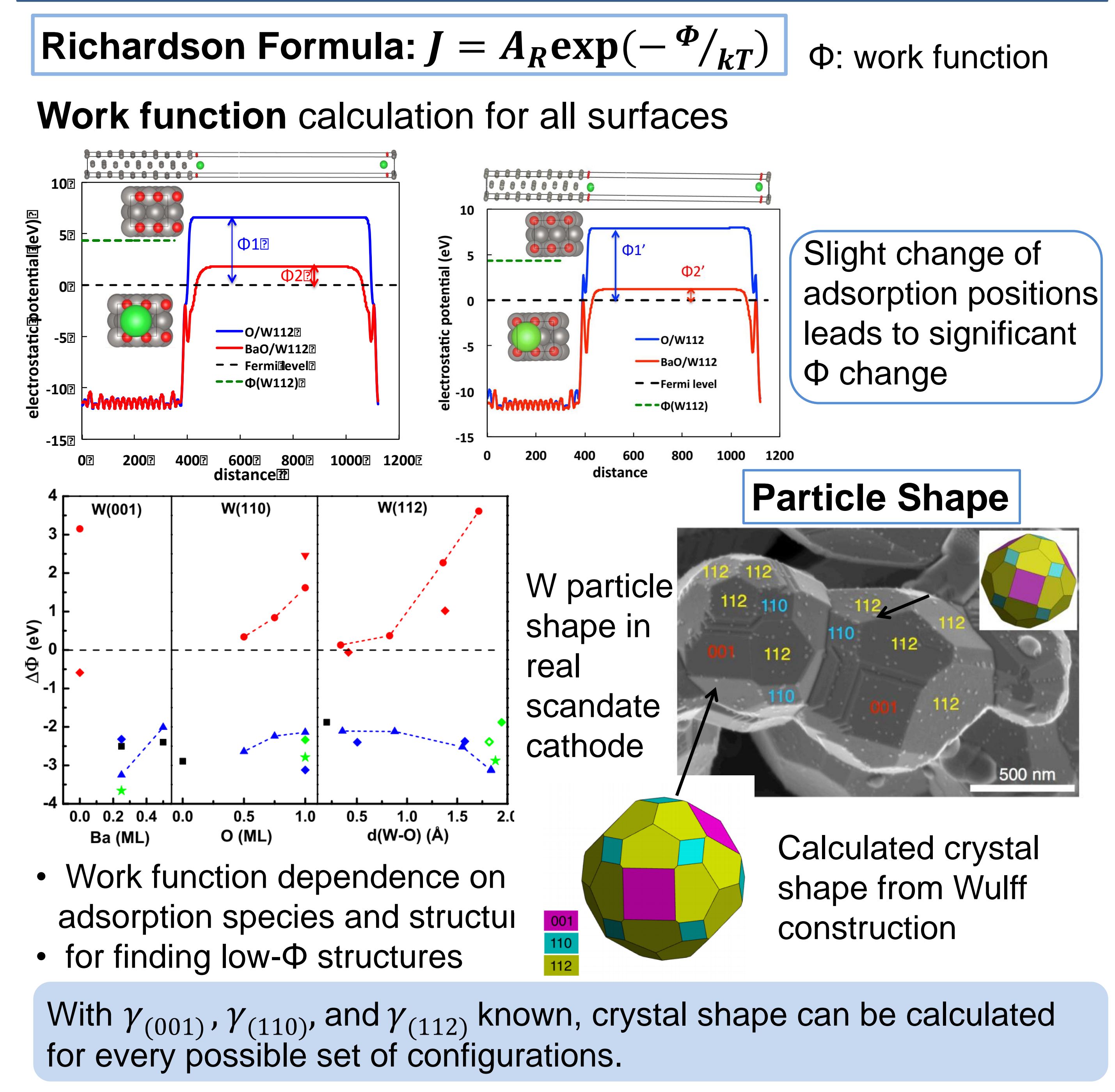
4. Materials Discovery--Surface



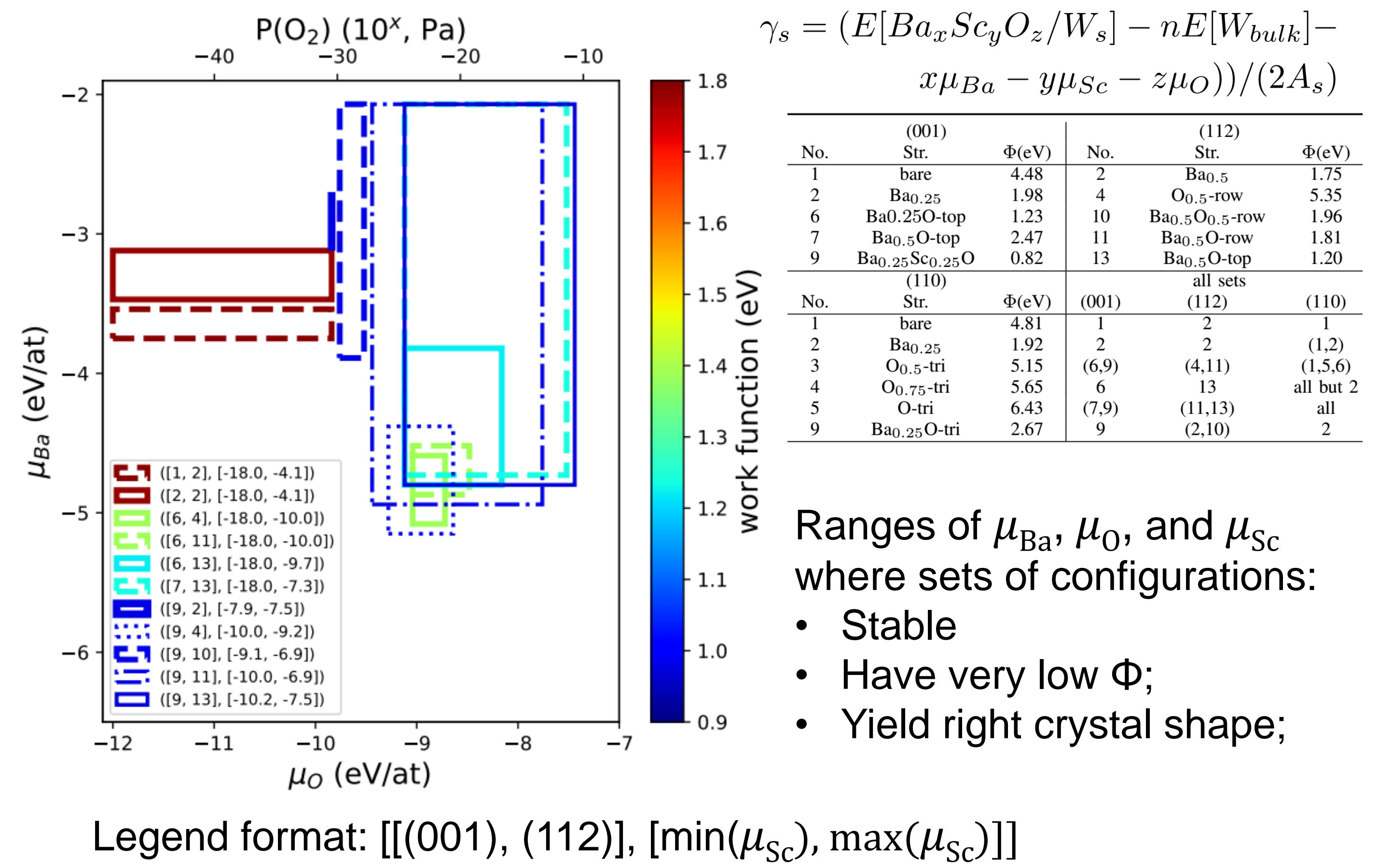
Stability is evaluated by surface energy γ_s :

$$\gamma_s = (E[Ba_xSc_yO_z/W_s] - nE[W_{bulk}] - x\mu_{Ba} - y\mu_{Sc} - z\mu_O) / (2A_s)$$

5. Materials Characterization



6. Materials and Device Design



7. Summary and Future Work

