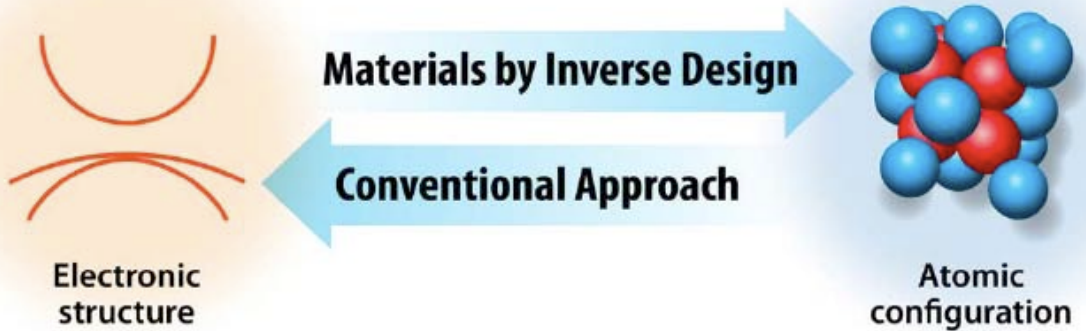




Summary statement:

We will focus on material discovery via an **“Inverse Band Structure”** (IBS) methodology to theoretically identify promising structures and compositions and then apply a combination of high-throughput and targeted materials synthesis to experimentally converge on the optimum properties.



RESEARCH PLAN AND DIRECTIONS

Rather than use the **conventional approach** “given the structure, find the electronic properties,” this center will employ the **Materials by Inverse Design** approach “given the desired property, find the structure.” The **target properties** include general semiconductor **optical and electrical properties**, and the desired materials functionalities include electron- and hole-conductive **transparent conductors, solar absorbers, and nanostructures** for energy sustainability. Predictions will be iteratively examined by various synthetic approaches including high-throughput parallel materials science.

