

Group 4: proposal and knowns

- What is the source, style, & magnitude of heat transfer through the lower mantle?
 - **Knowns:**
 - Present heat flow (44TW)
 - Heat flow from core to mantle is finite & positive
 - PREM is a good 1-D profile for V_s, V_p
 - Outer core liquid
 - Inner core solid
 - Slabs are primary mode of convection
 - Outer core side of CMD is relatively isothermal
 - CMB temperature $>$ core side
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Group 4 needs

- **Need:**
 - Phase diagram for all relevant compositions
 - Equations of state
 - Rayleigh number (and involved quantities)
 - V_s , V_p in combo, seismic structure
 - Slab flux into lower mantle
 - Plumes from
 - Radiogenic element budget distribution
 - Inner core needed for dynamo
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