

Abstract Submitted  
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**New candidates for the  $\text{Pt}_8\text{Ti}$  structures in intermetallics** ERIN GILMARTIN, JACQUELINE CORBITT, GUS HART, Brigham Young University — The only known intermetallic structure with an 8:1 stoichiometry is that of  $\text{Pt}_8\text{Ti}$ . Because of its uniqueness, this structure has been studied in Pt, Pd, and Ni rich systems. However, these metals have only been paired with a handful of other elements. Are there more elements that when alloyed with Pt, Pd, or Ni order with the  $\text{Pt}_8\text{Ti}$  structure? We explored  $\approx 40$  different Pd- and Pt-based binary systems. We calculated their formation enthalpies for the  $\text{Pt}_8\text{Ti}$  structure, compared the value to the tie line between pure Pd/Pt and experimentally-observed ground states. We find that there are other (beyond those experimentally observed) possible alloys with this structure. These new Pt/Pd-rich alloys could find application in the jewelry and catalysis industries.

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