

Abstract Submitted
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New structures in Pd-rich ordered alloys¹ JACQUELINE CORBITT, GUS HART, Brigham Young University - Provo — An intriguing intermetallic structure with 8:1 stoichiometry was discovered in the 1950s in the Pt-Ti system. Since then, a handful of other Pt/Pd/Ni binary systems have been observed to exhibit this curious structure (e.g., Pt₈Zr, Pd₈Mo, Ni₈Nb, etc). This ordered structure can significantly increase the hardness of an alloy by forming precipitates. Recent calculations and experiments suggest that the 8:1 structure may form in about 20 previously unsuspected Pt/Pd binary systems. Using first-principles calculations, cluster expansion, Monte Carlo modeling, we have explored possible precipitate hardening (via the 8:1 structure) in Pd-Nb, Pd-Mg and Pd-Cu.

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