

**Electronic Supplementary Information (ESI)
for**

Synthesis of L1₀ Ferromagnetic CoPt Nanopowders Using a Single-Source Molecular Precursor and Water-Soluble Support

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A. Preparation and Characterization of the known molecular precursor, CoPt(CO)₄(dppe)Me

In a typical synthesis, 0.34 g of AgNO₃ was added in portions to a solution of 1.27 g of Pt(dppe)ClMe dissolved in 150 mL THF (tetrahydrofuran). The reaction solution was stirred at room temperature for 4 h during which time AgCl precipitated forming, in situ, a solution of Pt(dppe)(NO₃)Me. The Pt(dppe)(NO₃)Me solution was transferred by cannula (passing through a Celite/glass wool filter plug) into a 500-mL, two-neck round bottom reaction flask that then was cooled to -30 °C using a dry ice/bromobenzene bath. A solution of Na[Co(CO)₄], prepared by reacting 0.40 g of Co₂(CO)₈ in 200 mL THF with 0.70 g Na metal (dissolved in ca. 10 mL Hg) for 4.5 h at room temperature, was transferred by cannula (passing through a Celite/glass wool filter plug) into a dropping funnel attached to the 500-mL, two-neck reaction flask. The Na[Co(CO)₄] solution was added dropwise to the Pt(dppe)(NO₃)Me solution over 0.25 h. The resulting reaction solution was stirred at -30 °C for 1 h and then was warmed to room temperature and stirred for an additional 4 h. Solvent was removed from the orange reaction solution at reduced pressure giving an orange solid residue as crude product. Crystallization of the crude product from benzene/hexane solution gave 0.72 g (47% yield) of CoPt(CO)₄(dppe)Me as an orange solid: ¹H-NMR (CD₂Cl₂) δ 0.51 (t, 3, Me, ³J(PH) = 4 Hz; , ²J(PtH) = 57 Hz); 2.10-2.47 (m, 4, PCH₂CH₂P); 7.45-7.85 (m, 20, Ph).

B. Procedure for Ball-Milling NaCl Solid Support

In a typical procedure, 1.0 g of NaCl was placed into a ca. 20 mm x 45 mm plastic or ceramic vial appropriate for use in a SPEX Sample Prep 5100 Mixer Mill along with a single hardened stainless steel (plastic vial) or tungsten carbide (ceramic vial) milling bead and a small aliquot of fluoroalkane lubricant (1,1,1,2,3,3,4,4,5,5,5-decafluoropentane). After milling for 15 – 30 min, the vial content was poured onto weighing paper and allowed to evaporate to dryness in an air flow. The above procedure was repeated until the required mass of ball-milled NaCl powder was isolated.