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## **Complexes of N-(thio)phosphorylthioureas AdNHC(S)NHP(X)(OiPr)<sub>2</sub> (X = O, S) with cobalt(II), zinc(II), and cadmium(II). Crystal structure of Co[AdNHC(S)NP(S)(OiPr)<sub>2</sub>]<sub>2</sub>**

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### **Abstract**

Reaction of the potassium salts of N-(thio)phosphorylated thioureas of common formula AdNHC(S)N(H)P(X)(OiPr)<sub>2</sub> (Ad = adamantyl; X = O, HL I ; X = S, HL II ) with Co(II), Zn(II), and Cd(II) cations in aqueous EtOH leads to M(L I,II -X, S) <sub>2</sub> chelate complexes. The Cd(II) complex Cd(L I ) <sub>2</sub> could not be isolated under analogous conditions because of its hydrolytic lability. The structure of the resulting compounds was studied by means of spectroscopy and microanalysis; in addition, the molecular structure of the complex Co(L II ) <sub>2</sub> was elucidated by single crystal X-ray diffraction analysis. The cobalt atom is in a tetrahedral S<sub>4</sub> environment formed by the C=S and P=S sulfur atoms of two deprotonated ligands L II . The magnetic properties of Co(L I,II ) <sub>2</sub> were investigated and the photoluminescent properties of the complexes are also reported. © 2008 Springer Science+Business Media B.V.

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