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### Silver Coordination Complexes of 2-(diphenylphosphinomethyl)aminopyridine with Weakly Interacting Counterions

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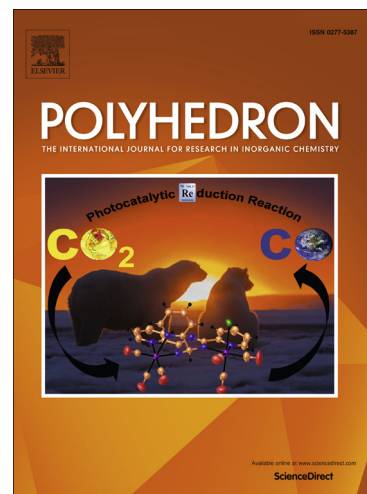
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5 Silver Coordination Complexes of 2-  
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8 (diphenylphosphinomethyl)aminopyridine with Weakly  
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12 Interacting Counterions  
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24 **Abstract**

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27 A tri-functional ligand ( $\text{Ph}_2\text{PCH}_2$ ) $\text{NH}(2\text{-C}_5\text{H}_4\text{N})$ , DPAP-2, has been synthesized via the Mannich  
28  
29 condensation reaction and its coordination behavior has been studied with various Ag(I) salts.  
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31 The ligand is capable of *P*-coordination, *P,N*-chelation, and *P,N*-bridging to form Ag(I)  
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33 complexes that range from discrete to 1-dimensional polymeric structures. In the 1:2 reaction of  
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35  $\text{AgBF}_4$  with DPAP-2, a 4-coordinate Ag(I) structure with *P,N'*-chelation is isolated (**1**). A  
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37 counterion effect is observed in the equimolar reactions of AgX (**2**: X =  $\text{BF}_4^-$  and **3**: X =  $\text{tfa}^-$ )  
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39 with DPAP-2, where the structures isolated are a dimer and a 1-dimensional polymer,  
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41 respectively. When an equivalent of 5,5'-dimethyl-2,2'-dipyridyl (5,5'-dmbpy) was incorporated  
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43 to the equimolar reaction of AgX and DPAP-2, three isostructural complexes resulted (**4**: X =  
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45  $\text{BF}_4^-$ , and supplementary structures **S1**: X =  $\text{tfa}^-$ , and **S2**: X = OTf). In the 2:1:2 reaction of AgX  
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47 (**5**: X =  $\text{BF}_4^-$  and **6**: X =  $\text{tfa}^-$ ) with DPAP-2 and 5,5'-dmbpy, two distinct complexes are isolated  
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54 where DPAP-2 adopts a *syn*- and *anti*- arrangement, respectively.  
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