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Structural Diversity in Silver Coordination Chemistry. Manju Rajeswaran, David R. Whitcomb, Eastman Kodak Company, Research & Development, Rochester, NY 14450-2106 USA.

The solid-state coordination environment of silver has been considered to be a classic case of being limited to two or three ligands. Over the last few decades, this view has been changing as it has become clear that the silver ion is capable of more structural diversity than previously thought, particularly with the detection of argentophilic bonding interactions. We report here a variety of recently resolved solid-state structures of silver complexes having a diversity, which requires that the silver coordination sphere include 3-6 ligands, in line with contemporary literature reports. We have observed complexes containing bonding motifs, such as chelated silver, including an unusual organic Ag-Cl or Ag-Br bond, silver carboxylate dimers containing the shortest Ag-Ag bond reported to date, and polymeric repeating units of asymmetrically constructed S-Ag-N and N-Ag-N links. In all cases, the coordination capability is similar to many other transition metals. Specific examples of the structural diversity observed within silver coordination chemistry will be the subject of this talk.

