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**Novel Linking Ligands Containing Group 6 Donor Atoms
and Their Compounds of Palladium and Silver**

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A novel multidentate ligand, 1,2-bis(furan-2-ylmethylene)hydrazine (**L1**) and 1,2-bis(thiophen-2-ylmethylene)hydrazine (**L2**) were prepared by Schiff-base condensation reaction. These prepared ligands were reacted with palladium starting compound, PdCl₂(NPh)₂, to give monomeric complexes. Also, two ligands were reacted with several silver(I) salts, which have different anions such as NO₃⁻ and ClO₄⁻. As a result, interested polymeric silver(I) complexes were prepared by self-assembly treatments. In all cases, aromatic-sulfur atoms bind to the silver(I) metal center via non-covalent interactions such as van der Waals interactions. It is a very rare phenomenon compared with common silver(I) sulfide bonding in the coordination chemistry. Also, intermolecular hydrogen bonding and π-π interaction were observed. Especially, in the case of the NO₃⁻ anions, it was observed that strong coordinative bonds and one-dimensional chains of face-sharing incomplete cubane structures, whose main skeletal frameworks were partially connected via van der Waals interactions. Photoluminescent property was also detected at the 548 nm emission area. All crystal structures were characterized by using X-ray diffraction analysis.