

A One Dimensional Metal-Organic Coordination Polymer
Based on Ag^+ and a Fullerene Linker

Ping Peng,+ Fang-Fang Li,+ Faye L. Bowles,† Venkata S.

Pavan K. Neti,+ Alejandro Metta,+ Marilyn M.

Olmstead,*;† Alan L. Balch,*;† Luis Echegoyen*,+

+ Department of Chemistry, University of Texas at El Paso, El Paso, Texas 79968, United States

† Department of Chemistry, University of California at Davis, Davis, California 95616, United States.

A new hexakis-fullerene adduct with two 4,5-diazafluorene groups located at trans-1 positions was successfully and selectively synthesized in very high yield. The N-containing 4,5-diazafluorene groups have strong affinity for metal ion coordination as a chelating ligand. By assembly with $\text{Ag}(\text{triflate})$, a one dimensional metal-organic coordination polymer based on a fullerene linker was obtained. In contrast, reaction with $\text{Ag}(\text{BF}_4)$ failed to assemble a coordination polymer. The reasons for this difference are revealed in the single crystal X-ray crystal structures of the two products. These results are promising for further elaboration of C_{60} linkers as new building blocks for 2D and 3D Metal-organic frameworks (MOFs).