A porous zirconium-based metal-organic framework (MOF NU-901), typically non-conductive, was rendered electronically conductive by installing isolated C\textsubscript{60} molecules (buckyballs) in approximately half of the diamond-shaped pores of the MOF; additionally, the internal surface area decreased only by about 27% after C\textsubscript{60} incorporation.

**Significance and Impact**

The conductive version of the MOF, after addition of C\textsubscript{60}, retains substantial nanoscale porosity and continues to display a sizable internal surface area; future applications of the material could be found in its ability to sorb molecular species, or further in electrocatalysis.

**Research Details**

C\textsubscript{60} infiltrated NU-901 was synthesized and analyzed via experiment and computation for its composition and conductive properties.

- The electrical conductivity of NU-901 was increased by eleven orders of magnitude via the incorporation of C\textsubscript{60}: from 10\textsuperscript{-14} S\text{cm}\textsuperscript{-1} to 10\textsuperscript{-3} S\text{cm}\textsuperscript{-1}.


Work was performed at Northwestern University and University of Minnesota.