Hydrosilylations Catalyzed by Iron-Doped Metal–Organic Layers

**Significance:** Metal–organic layers (MOLs) composed of \([\text{Hf}_6\text{O}_{13}\text{(OH)}_8\text{(HCO}_2\text{)}_6]\) secondary building units and 4,4′,4″-benzene-1,3,5-tris(triptyridine-5,5″-dicarboxylate) (BTB) bridging ligands were prepared. The MOL structures were doped with 4′-(4-carboxylatophepheryl)-2,2′,6″,2‴″-terpyridine-5,5″-dicarboxylate (TPY) and FeBr₂ to afford the solid material Fe-TPY-MOL, which catalyzed the hydrosilylation of terminal olefins. For example, the reaction of styrene (1) with phenylsilane (2) proceeded in the presence of Fe-TPY-MOL to give the linear silane 3 in quantitative yield.

**Comment:** In the reaction of styrene (1) with phenylsilane (2), the Fe-TPY-MOL catalyst showed a better performance than the metal–organic framework-based catalysts Fe-TPY-MOF1 (prepared from an interlocked Hf-MOF instead of the MOLs), Fe-TPY-MOF2 (prepared from a stacked Hf-MOF instead of the MOLs), or the homogeneous counterpart Fe-TPY (prepared from FeBr₂, TPY, and NaBHEt₃). When Fe-TPY-MOF1, Fe-TPY-MOF2, and Fe-TPY were employed as catalysts for the reaction, the ratios of products 3 and 4 were 0:0, 30:0, and 3:43, respectively.