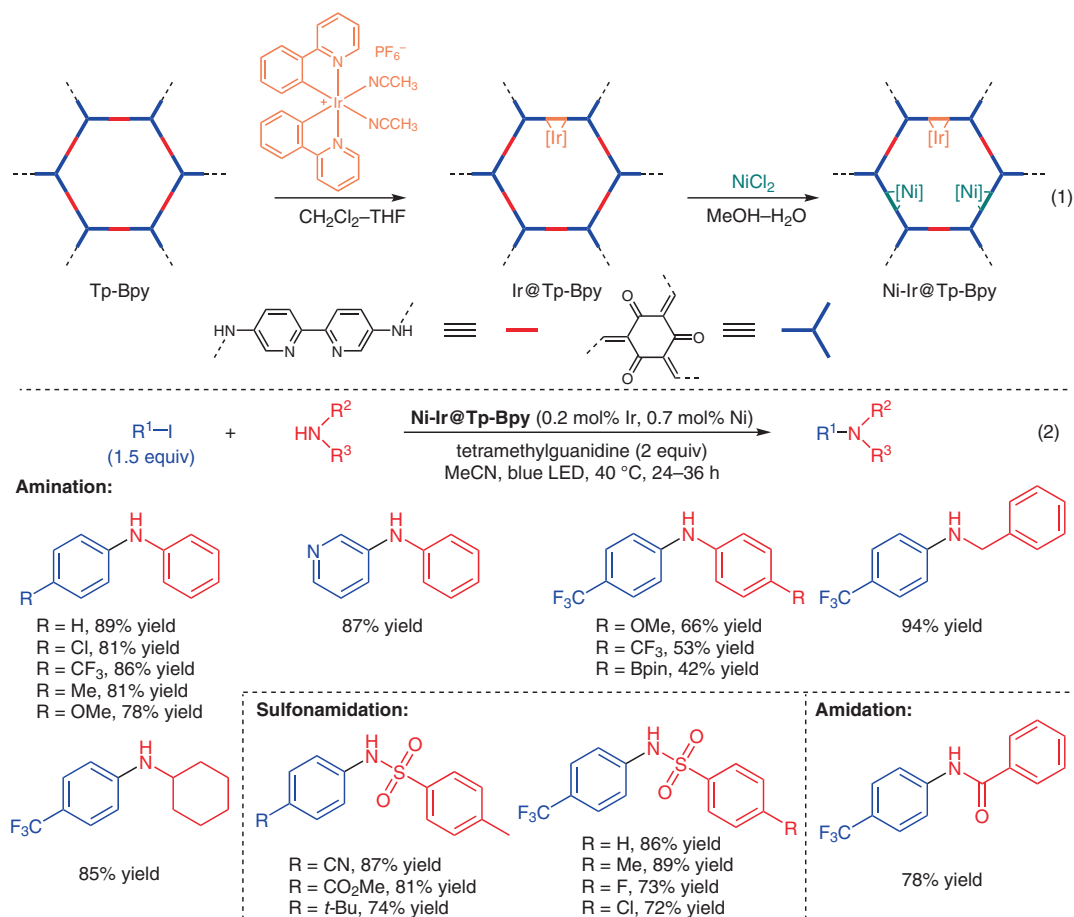


Photocatalytic C–N Cross-Coupling by a Covalent Organic Framework Containing Iridium and Nickel



Significance: A heterobimetallic covalent organic framework **Ni-Ir@TpBpy** was prepared through the sequential complexation of iridium and nickel species with a covalent organic framework **Tp-Bpy** composed of 1,3,5-triformylphloroglucinol and 5,5'-diamino-2,2'-bipyridyl (eq. 1). **Ni-Ir@TpBpy** catalyzed the C–N cross-coupling of aryl iodides with amines, sulfonamides, or carboxamides under blue-light irradiation to give the corresponding aniline derivatives in up to 94% yield (eq. 2).

Comment: Theoretical calculations revealed the feasibility of electron transfer from the Ir unit to the Ni unit due to the close proximity inside the core of COF, which enhances the catalytic activity for the C–N coupling. In the reaction of iodobenzene with aniline, the catalyst was recovered and reused nine times without a significant loss of its catalytic performance (10th cycle: 78% yield).