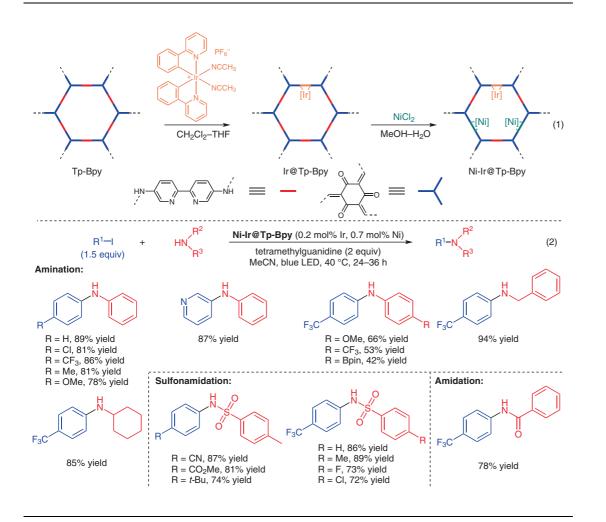
A. JATI, K. DEY, M. NURHUDA, M. A. ADDICOAT, R. BANERJEE\*, B. MAJI\* (INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH KOLKATA, MOHANPUR, INDIA) Dual Metalation in a Two-Dimensional Covalent Organic Framework for Photocatalytic C-N Cross-Coupling Reactions *J. Am. Chem. Soc.* **2022**, 144, 7822–7833, DOI: 10.1021/jacs.2c01814.

## 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 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 bluelight 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).

## Category

Polymer-Supported Synthesis

## Key words

iridium catalysis

nickel catalysis

covalent organic framework

photocatalysis

C–N cross-coupling

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