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SYNFACTS Highlights in Chemical Synthesis

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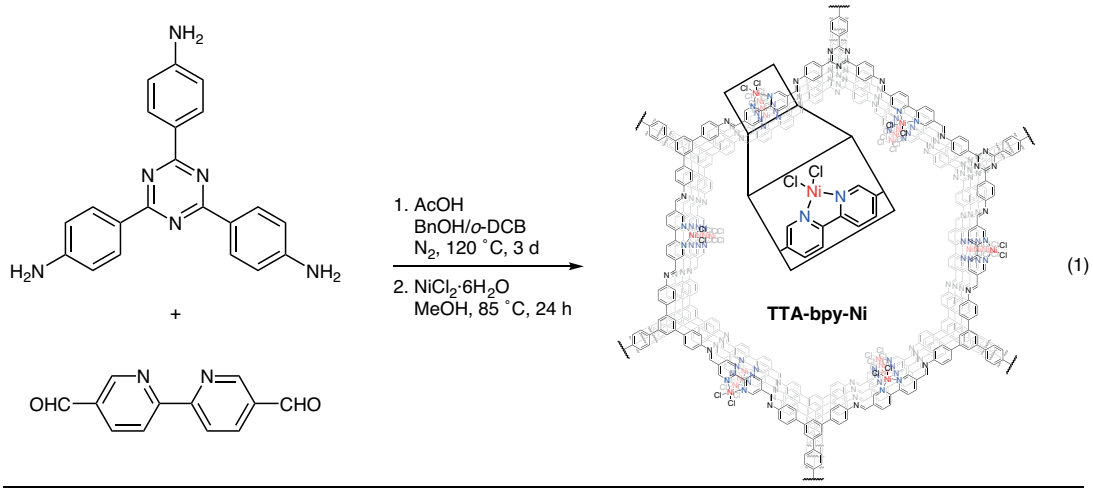
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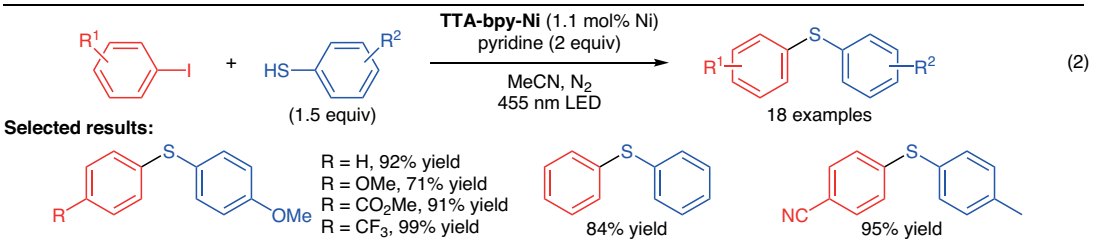
Y.-Y. XIONG, S. DENG, H. WANG, S.-H. LIU, P. VANNATTA, J.-L. LIN, J. LIU, C. SUN, X. GUO, C.-X. CHEN*, A. NAFADY, A. M. AL-ENIZI, S. MA* (SUN YAT-SEN UNIVERSITY, GUANGZHOU, P. R. CHINA, AND UNIVERSITY OF NORTH TEXAS, DENTON, USA)

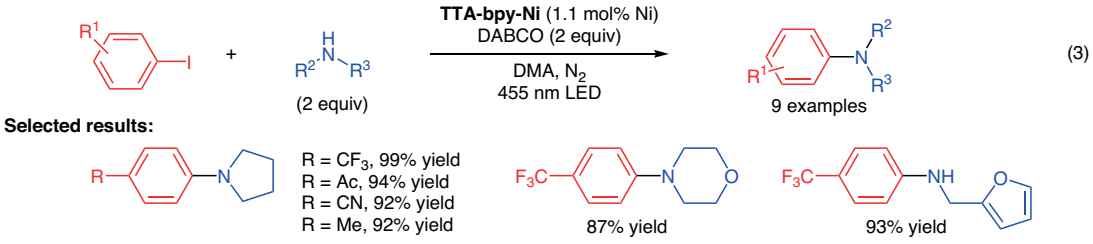
Single-Site Nickel-Anchored Photosensitive Covalent Organic Framework for Metallaphotocatalytic C–S/C–N Cross-Coupling Reactions

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C–S and C–N Coupling Reactions Using a Ni(bpy)Cl_2-Containing Covalent Organic Framework







Significance: A $NiCl_2$–2,2′-bipyridine-complex-containing COF (**TTA-bpy-Ni**), prepared according to equation 1, catalyzed the C–S coupling of iodobenzenes and benzene thiols to afford the corresponding thioethers in up to 99% yield (eq. 2). **TTA-bpy-Ni** also promoted the C–N coupling of iodobenzenes and amines under similar reaction conditions to afford the corresponding anilines in up to 99% yield (eq. 3).

Comment: TTA-bpy-Ni was characterized by means of FT-IR, TGA, gas adsorption isotherms, PXRD, XPS, ICP-AES, EXAFS, XAFS, SEM, TEM, HAADF-STEM, EDX, UV-Vis DRS, PL, and Mott–Schottky plot measurements. In the coupling reactions of 4-iodo-benzene trifluoride and 4-methoxybenzene thiol or pyrrolidine, the catalyst was recovered and reused four times without a significant loss of its catalytic activity.

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