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ON C-H ACTIVATION

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OR07 – Nickel-Catalyzed C-3 Direct Arylation of Pyridinium Ions
for the Synthesis of 1-Azafluorenes

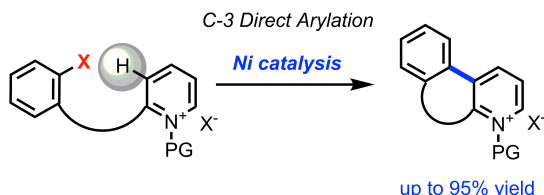
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The direct arylation of pyridine derivatives using non-precious catalysts is underdeveloped but highly desirable due to its efficiency to access important motifs while being extremely cost-effective. An unprecedented nickel-catalyzed C-3 direct arylation of pyridinium ions was developed to provide a new approach to valuable 1-azafluorene pharmacophore frameworks. This transformation is accomplished using air-stable nickel catalyst precursors and tolerates a variety of substituents. Computational studies were performed to further understand the unique reactivity of the pyridinium ions under these conditions and the reaction pathway which leads to the products obtained.



- Novel reactivity of pyridinium ions studied by DFT calculations
- New C-3 direct arylation of pyridine with Ni
- Unprecedented 1-azafluorene synthesis
- Air-stable and inexpensive Ni pre-catalyst