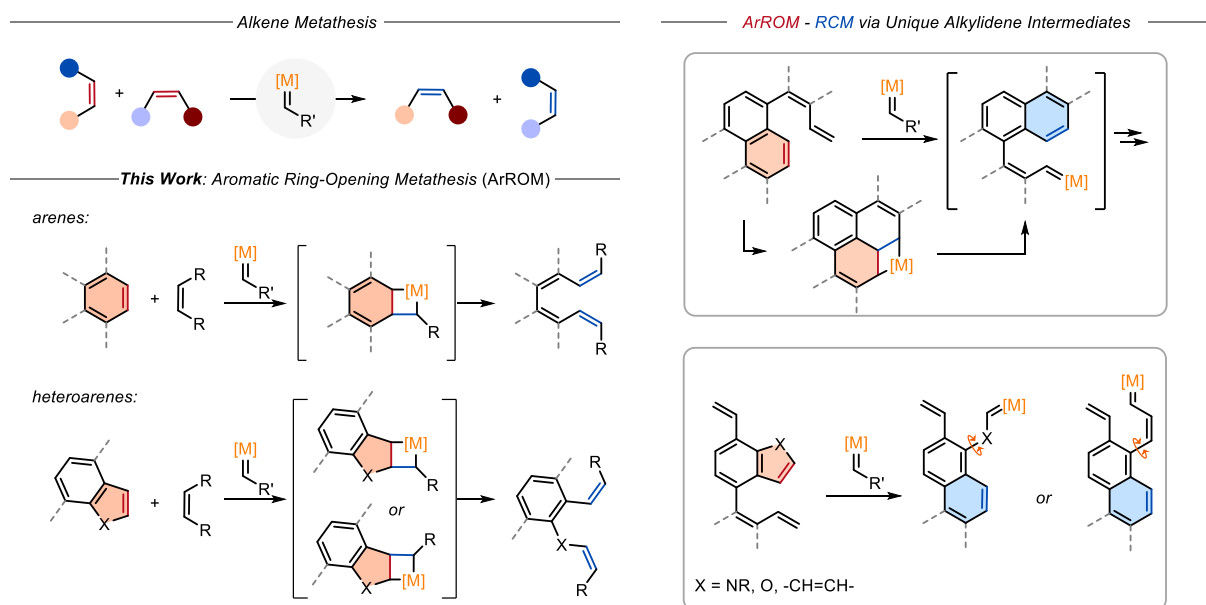


Aromatic Ring-Opening Metathesis

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Aromatic compounds are extensively utilized in organic synthesis due to the wide array of methods available for their synthesis and further functionalization of the ring. Contrarily, the transformations involving cleavage of inert aromatic carbon-carbon bonds remained underdeveloped due to the unfavourable energetics of aromaticity disruption.^[1] While for non-aromatic structures, alkene metathesis has become an indispensable tool for versatile carbon-carbon bond-forming and breaking reactions both in industry and academia, methods to open aromatic compounds remained challenging and elusive.^[2] We herein describe the first examples of aromatic ring-opening metathesis and demonstrate its feasibility and generality by cleaving a diversity of aromatic rings, including tetraphene, naphthalene, indole, benzofuran and phenanthrenes. Proceeding through unique alkylidene intermediates, arene metathesis enables access to a broad range of reaction manifolds and cascades. Furthermore, highly atroposelective transformations (up to > 99 : 1 e.r.) were also achieved with chiral Schrock-Hoveyda molybdenum alkylidene catalysts.^[3,4]



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