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C-H free metal-organic green catalysts

The ultimate green catalyst for oxidations, molecular oxygen poses significant challenges when the catalyst contains C-H bonds. While enzymatic catalysis is a viable option *in vivo* since the biocatalysts are continuously regenerated, viable industrial processes using long-lasting, robust catalysts are preferred. Bioinspired catalysts that contain organic scaffolds related to hemes, but with all C-H bonds replaced by aromatic and aliphatic C-F bonds constitute a new class of materials that have been shown to perform chemical and photochemical aerobic oxidations and oxygenations of organic and biological substrates while resisting the reactive oxygen species they produce. This class of materials will be reviewed and its prospects in homogeneous and heterogeneous catalysis assessed.

Biography

Sergiu M Gorun has received his PhD from the Massachusetts Institute of Technology. Following an industrial career, he is currently Professor in the Department of Chemistry and Biochemistry at Seton Hall University in South Orange, New Jersey and the Director of its Center for Functional Materials.

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