

Metal-Catalyzed Oxidations of Alkanes under Mild Conditions

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Alkanes, abundant inert and carbon-rich species, are normally used as non-renewable fossil fuels, with loss of carbon to the atmosphere, but the development of green processes for their functionalization should favor the eventual shift of their application towards alternative raw materials for organic synthesis.

Results obtained in this field by the author's research Group will be discussed, namely concerning the following types of reactions:

Metal-catalyzed peroxidative oxidations of alkanes; Hydrocarboxylations of alkanes to carboxylic acids in partially aqueous media; Metal-catalyzed alkanes carboxylations to carboxylic acids in non-aqueous media.

Some of the systems feature the highest catalytic activities so far reported for alkane functionalizations under mild conditions.

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