

THE FUNCTIONALIZATION OF METHANE: STRATEGY AND UNDERSTANDING

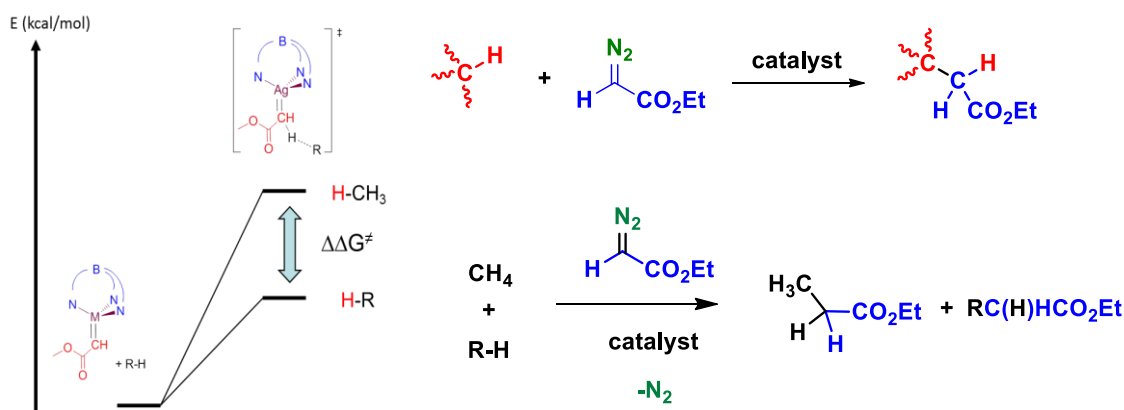
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The functionalization of alkanes and, particularly, methane, yet constitutes an area of interest given the relatively low number of catalytic systems reported to date toward that end [1]. The large availability of methane in natural or shale gas deposits makes it an excellent C1-source for synthetic purposes, albeit the catalytic systems described to date do not meet the required activity (TON (minimum) = 1 s⁻¹) for industrial uses[2].

Our group has been involved in the area of hydrocarbon C-H functionalization using the strategy of carbene transfer from diazo compounds,[3] which along the years has been developed until methane could be reached[4]. In this contribution an account of such development, including the importance of the reaction medium and the nature of the carbon-hydrogen bond in the reaction outcome will be presented. An extensive study of relative reactivity of a number of alkanes, from C1 to C8 has led to a model that allows the estimation of the reactivity based on a few simple rules.



References

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