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Triarylmethyl, and Acridinium Cation-Based Dyes for use as Hydrogen Evolution Catalyst GEORGE HARGENRADER, STEFAN ILIC, KSENIJA GLUSAC, Bowling Green State Univ, GLUSAC GROUP TEAM — Solar energy conversion is limited by the temporal variance in solar radiation, necessitating the need for solar energy storage. One method is to use sunlight to drive uphill chemical reactions creating solar fuels, mainly hydrogen. To facilitate this we have investigated several pathways to generate fuels from abundant metal-free feedstock using sunlight. One key element in the scheme is a catalyst that can drive the reaction when given separated charges. We present select triarylmethyl (6O+), and acridinium (2O+) cation-based dyes that have been evaluated for their photo-catalytic behavior. Specifically redox potentials, ground state excited state radical and ionized absorptions and fluorescence spectra to measure energetics and determine viability for use with GaP as a light co-absorber.

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