Redox-Auxiliary Catalysis used to Develop New Solar Fuels

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We have synthesized a new compound, AA-N-Ts, which shows promise as a substrate for the recyclable storage of solar energy. This norbornadiene (N) derivative undergoes photoisomerization to the highly strained quadricyclane (Q) isomer upon solar irradiation. The subsequent exothermic reversion from Q to N can be effected by the addition of a catalytic chemical oxidant or by oxidation at an electrode.