

Abstract Submitted
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Low temperature conversion of molecular species via a hybrid plasma discharge – catalytic process ED BARNAT, Sandia Laboratories, NM — Various avenues are being perused towards developing more sustainable energy sources to meet current and future energy requirements. Central to these energy surety related concerns is the efficiency of a given processes (chemical reaction) employed for synthesis of these fuels or energy sources. We present results from our preliminary studies on using low-temperature non-equilibrium discharges, coupled to active surfaces as a means of efficiently dissociating key molecular species that may be used towards fuel synthesis. Specifically, we focus on dissociating carbon dioxide to form carbon monoxide which is used in conjunction with hydrogen to generate syngas and higher hydrocarbons. While studies have been performed using various plasma sources, we primarily use a “hybrid” plasmas with tuned E/N that has been demonstrated to efficiently dissociate carbon dioxide[1].

[1] S. N. Andreev et. al, Spectrochimica Acta A **60**, 3361 (2004).

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