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**Plasma enhanced C1 chemistry for green technology**

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Plasma catalysis is one of the innovative next generation green technologies that meet the needs for energy and materials conservation as well as environmental protection. Non-thermal plasma uniquely generates reactive species independently of reaction temperature, and these species are used to initiate chemical reactions at unexpectedly lower temperatures than normal thermochemical reactions. Non-thermal plasma thus broadens the operation window of existing chemical conversion processes, and ultimately allows modification of the process parameters to minimize energy and material consumption. We have been specifically focusing on dielectric barrier discharge (DBD) as one of the viable non-thermal plasma sources for practical fuel reforming. In the presentation, room temperature one-step conversion of methane to methanol and hydrogen using a miniaturized DBD reactor (microplasma reactor) is highlighted. The practical impact of plasma technology on existing C1-chemistry is introduced, and then unique characteristics of plasma fuel reforming such as non-equilibrium product distribution is discussed.