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**Plasma reforming of ethanol in plasma-liquid system with discharge in gas channel with liquid wall** VALERIY CHERNYAK, VUTALIY YUKHYMENKO, SERGIJ OLSZEWSKI, SERGIJ SIDORUK, DMITRIJ LEVKO, ANATOLIJ SHCHEDRIN, VADIM NAUMOV, VALENTINA DEMCHINA, KYIV NATIONAL TARAS SHEVCHENKO UNIVERSITY, PR-T ACAD. GLUSHKOVA 2/5, KYIV 01033, UKRAINE TEAM, INSTITUTE OF PHYSICS, UKRAINIAN ACADEMY OF SCIENCES, PROSP. NAUKI 46, KYIV 03028, UKRAINE COLLABORATION, INSTITUTE OF GAS, NATIONAL ACADEMY OF SCIENCES OF UKRAINE, DEGTYAREVSKAY COLLABORATION — This paper presents the results of experimental and theoretical investigations of the process of nonthermal plasma-assisted reforming of aqueous ethanol solutions in the dynamic plasma liquid systems using the DC electric discharges in a gas channel with liquid wall and the additional excitation of ultrasonic field in liquid. The experiments show possibilities and efficiency of low-temperature plasma-chemical conversion of liquid ethanol into hydrogen-rich synthesis gas in different regimes. The numerical modeling clarifies the nature and explains the kinetic mechanisms of nonequilibrium plasma-chemical transformations in the plasma-liquid systems in different modes.

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