

Online supporting information for the following article

## **Experimental Study of a Rotating Electrode Plasma Reactor for Hydrogen Production from Liquid Petroleum Gas Conversion**

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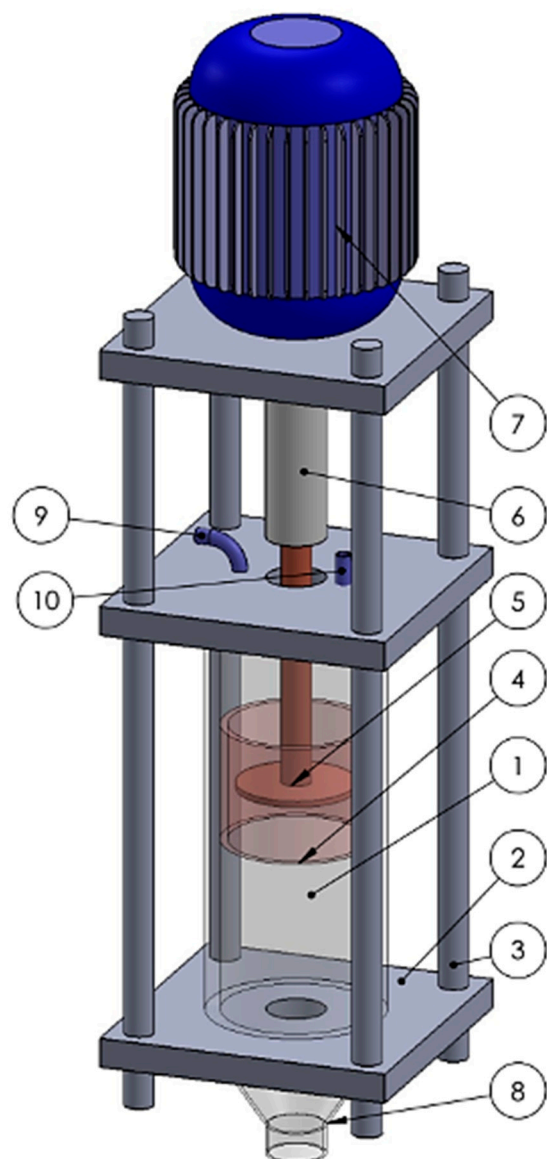
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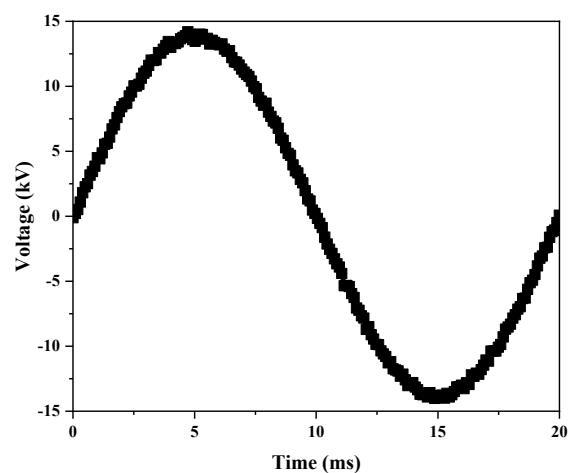
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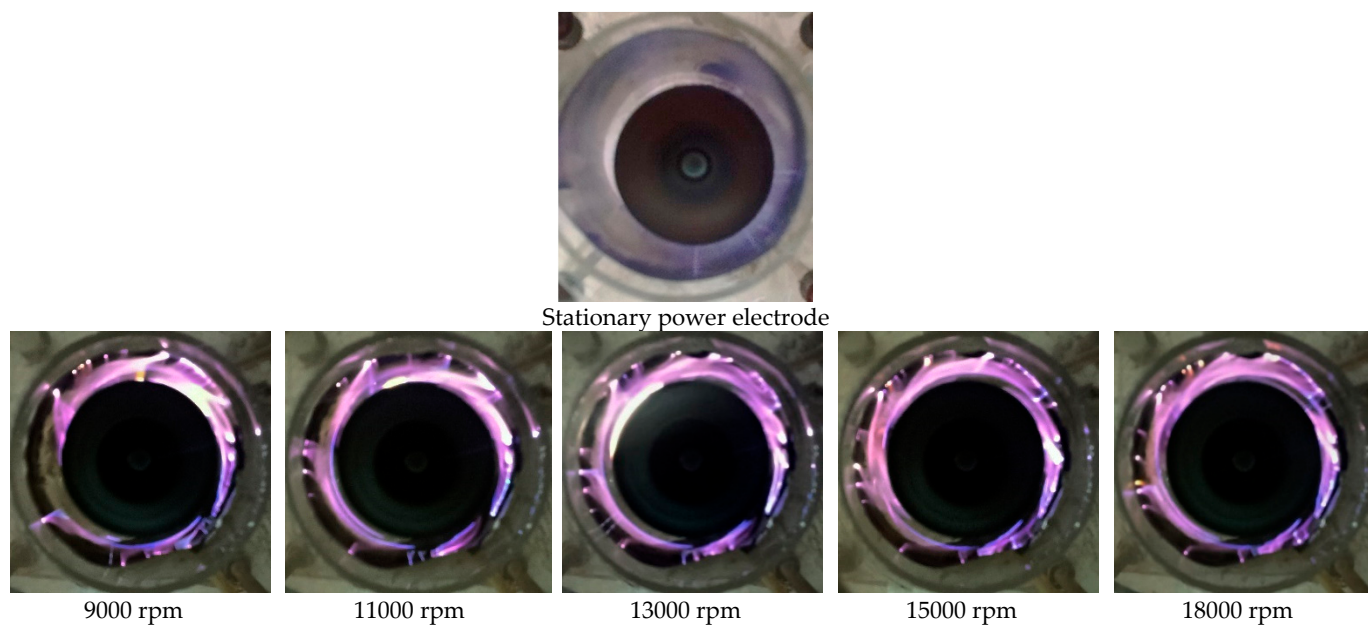
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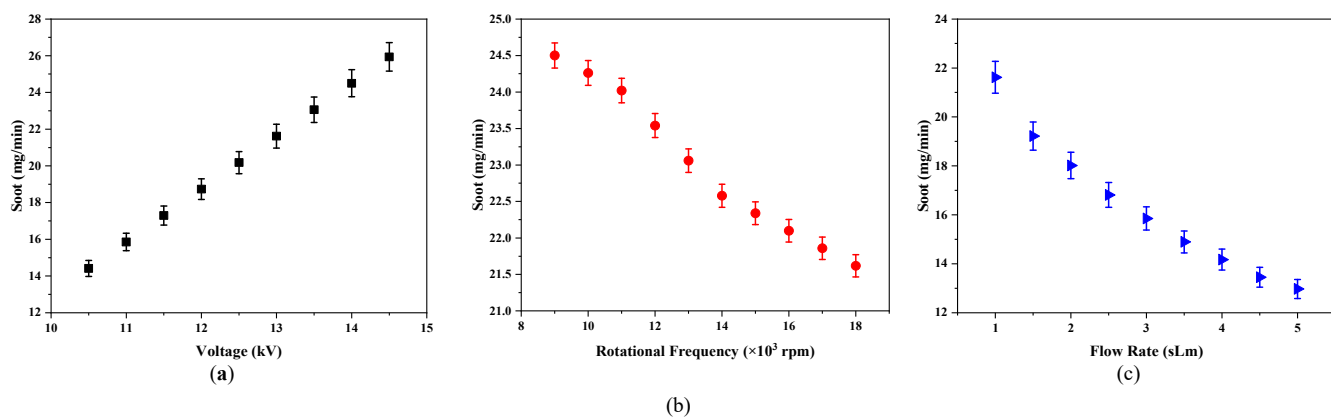
**Figure S1.** Schematics of the developed plasma reactor; (1) Quartz tube, (2) Metal plate, (3) Metal rod, (4) Cylindrical electrode, (5) Disk electrode, (6) Disk rotating rod, (7) Electromotor, (8) Gas output, (9) Gas Inlet, (10) place of diagnostic instruments (optical fiber or probes).



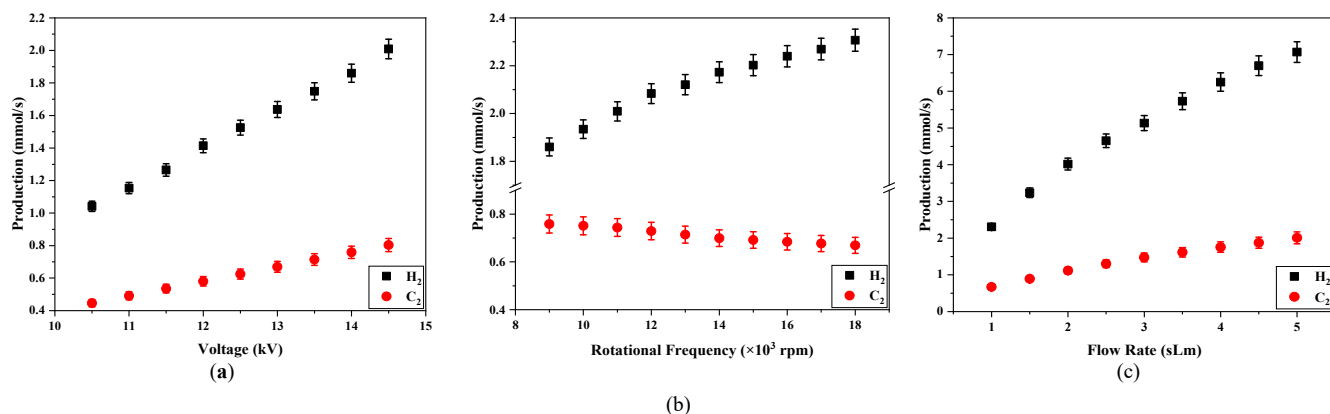
**Figure S2.** The voltage waveform of the plasma discharge at 14 kV applied voltage, 18000 rpm rotational frequency, and 1 sLm gas flow rate.



**Figure S3.** Photographs of the discharge in the reactor for stationary power electrode and the rotational frequencies between 9000 and 18000 rpm at 14 kV applied voltage.



**Figure S4.** Soot deposited on the reactor wall versus (a) different voltages applied on the stationary power electrode at 1 sLm gas flow rate, (b) rotational frequencies of power electrode at 14 kV applied voltage and 1 sLm gas flow rate, and (c) gas flow rates at 14 kV applied voltage and 18000 rpm rotation frequency of the power electrode.



**Figure S5.** Production rate of  $H_2$  and  $C_2$  in the exhaust gas versus (a) different voltages applied on the stationary power electrode at 1 sLm gas flow rate, (b) rotational frequencies of power electrode at 14 kV applied voltage and 1 sLm gas flow rate, and (c) gas flow rates at 14 kV applied voltage and 18000 rpm rotational frequency.