

## SUPPORTING INFORMATION

### Electrochemical reduction of carbon dioxide to acetic acid on Cu-Au modified boron-doped diamond electrode in a flow-cell system

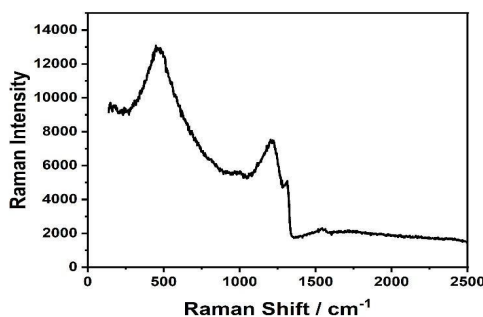
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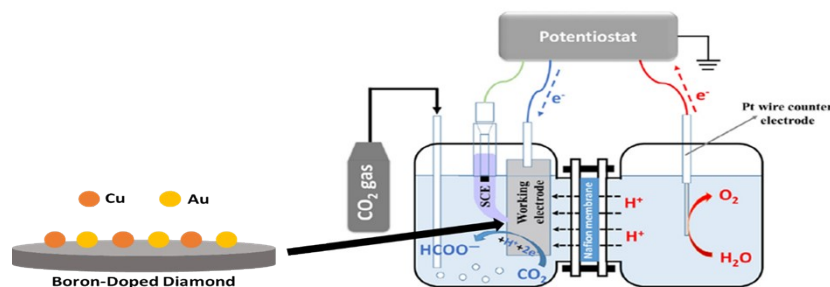
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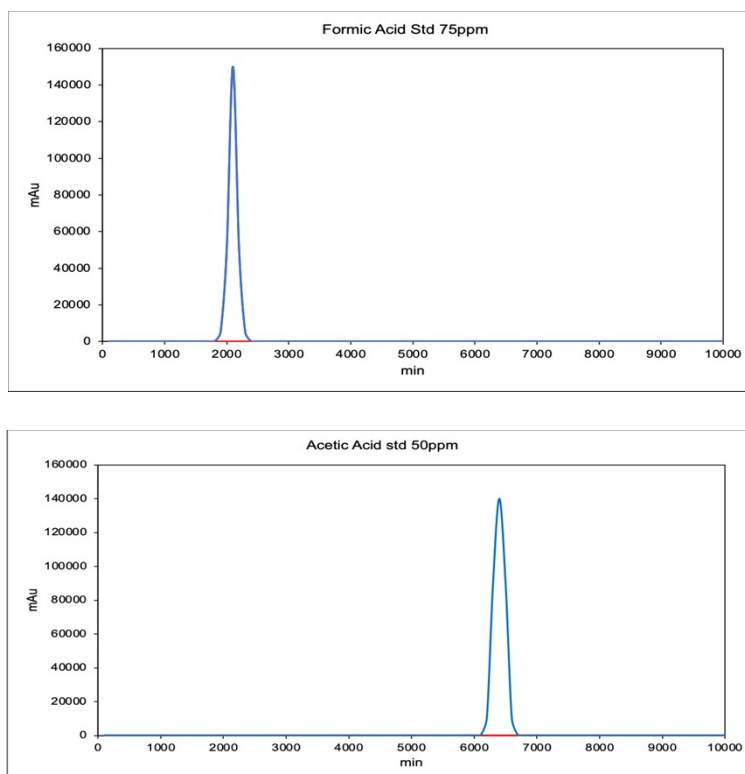


**Figure S1.** Raman spectra of the unmodified boron-doped diamond film prepared by using MPACVD.

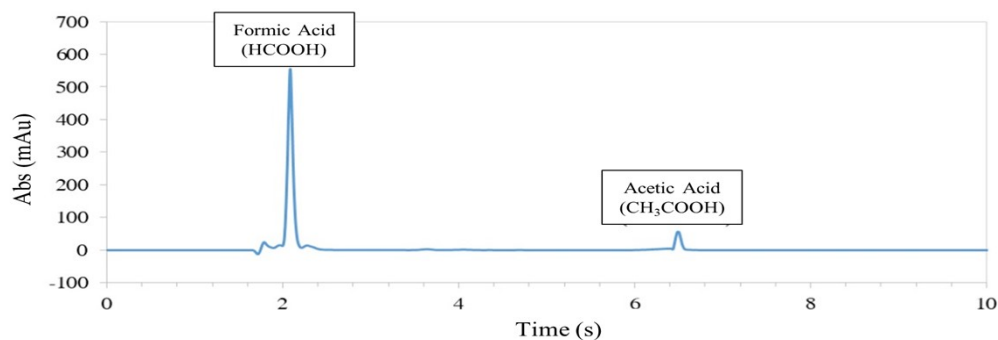


**Figure S2.** Schematic Diagram of the CO<sub>2</sub> electro-reduction device used in this work

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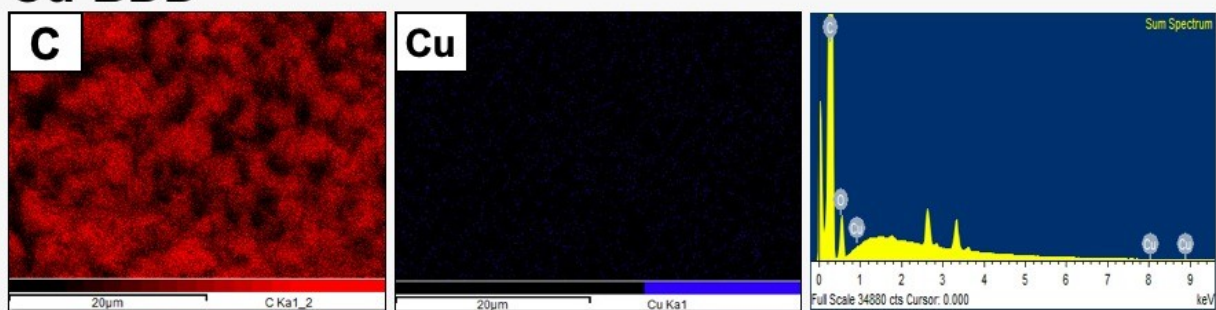
**Figure S3.** The standard chromatogram of acetic acid (75 ppm) and formic acid (50 ppm) with inertsil ODS-3 (5  $\mu\text{m}$ , GL Science) used as the column and 0.1%  $\text{HClO}_4$  as the mobile phase



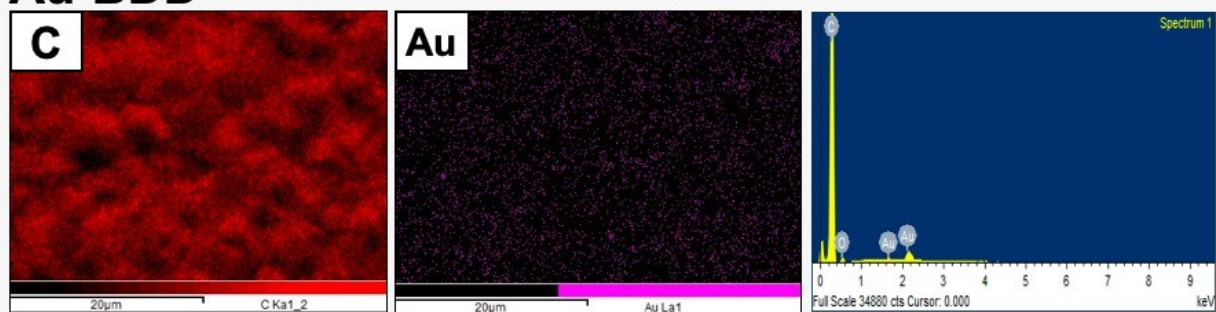
**Figure S4.** Chromatogram of  $\text{CO}_2$  electroreduction products using CuAu-BDD electrodes at an applied potential of  $-1.0$  V (vs Ag/AgCl) for 1 hour. The column was Inertsil ODS-3 (5  $\mu\text{m}$ , GL Science) with 0.1%  $\text{HClO}_4$  as the mobile phase

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### Cu-BDD



### Au-BDD



### CuAu-BDD

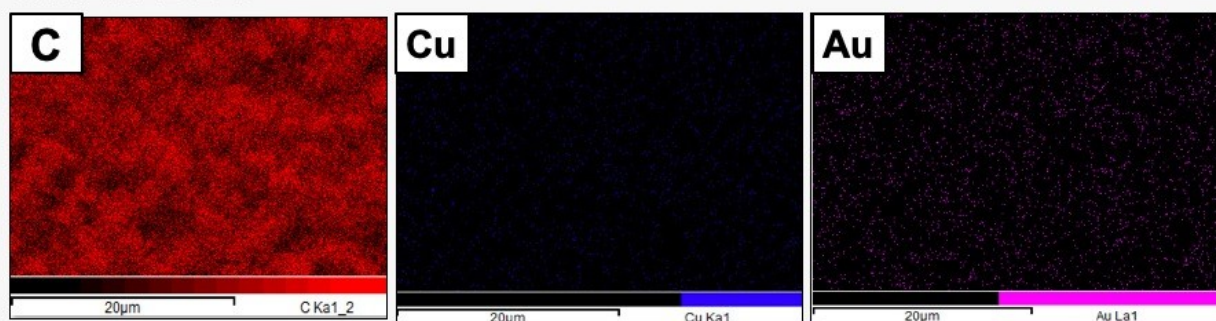


Figure S5. EDS mapping of C, Cu, Au for Cu-, Au-, and CuAu-BDD