1    **Page: 3 Figure: 1; Table: 2**

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3                             **Supporting Information**

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5    **Capactive Removal and Recovery of Nutrients from Wastewater with Disinfection**

6                                   **Capability**

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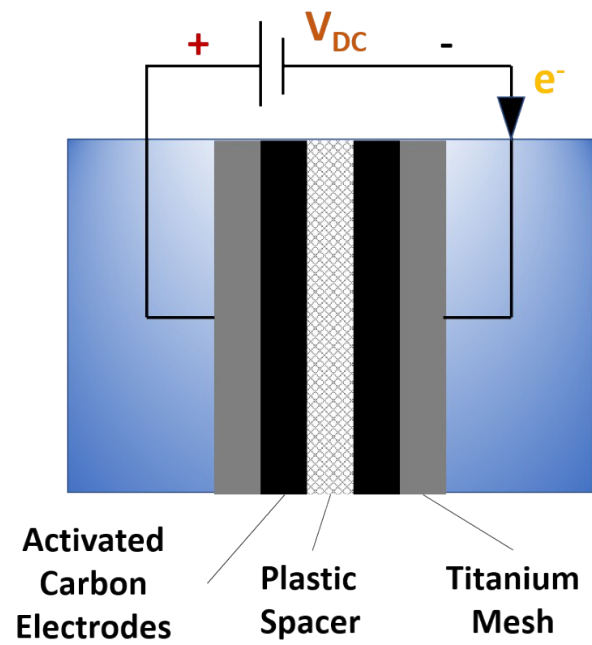15   Phone: 303-492-4137; fax: 303-492-7317

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**Figure S1.** Schematic of electrosorption device

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**Table S1** Reduction of conductivity, NH4-N, and PO4-P under different voltage input

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| Voltage (V) | Conductivity (us/cm) | | | | $NH_4^+$-N (mg/L) | | | | $PO_4^{3-}$-P (mg/L) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Initial | Final | Removal (%) | Removal rate (us/cm/h) | Initial | Final | Removal (%) | removal rate (mg/g/h) | Initial | Final | Removal (%) | removal rate (mg/g/h) |
| 1.2 | 267 ±8 | 59 ±1 | 77.5 ±0.4 | 37.8 ±3.1 | 18.2 ±0.6 | 7.1 ±0.1 | 60.5 ±1.6 | 0.023 ±0.003 | 3.46 ±0.21 | 1.56 ±0.72 | 46.4 ±1.5 | 0.0031 ±0.0007 |
| 1.8 | 267 ±8 | 44 ±2 | 83.1 ±1.0 | 46.4 ±1.8 | 18.2 ±0.6 | 2.7 ±0.1 | 84.9 ±0.2 | 0.036 ±0.001 | 3.46 ±0.21 | 1.04 ±0.04 | 71.0 ±1.0 | 0.0051 ±0.0005 |
| 2.4 | 267 ±8 | 57 ±2 | 78.4 ±1.0 | 48.0 ±2.0 | 18.2 ±0.6 | 2.0 ±0.1 | 89.2 ±0.2 | 0.046 ±0.002 | 3.46 ±0.21 | 1.02 ±0.11 | 72.3 ±2.7 | 0.0065 ±0.0002 |
| 3.0 | 267 ±8 | 23 ±2 | 91.2 ±1.0 | 54.2 ±3.0 | 18.2 ±0.6 | 0.8 ±0.1 | 95.7 ±0.4 | 0.054 ±0.002 | 3.46 ±0.21 | 0.69 ±0.03 | 80.7 ±0.7 | 0.0073 ±0.0004 |

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46 **Table S2** Energy consumption of CDI with different operation voltage input

| Energy Consumption (kWh/m³) | 1.2 V | 1.8 V | 2.4 V | 3.0 V |
|---|---|---|---|---|
| 6 hr | 0.045±0.023 | 0.164±0.012 | 0.270±0.023 | 0.558±0.006 |
| 12 hr | 0.092±0.048 | 0.289±0.021 | 0.439±0.042 | 0.873±0.007 |

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