Supplementary Information

Virus Inactivation in Water Using Laser-Induced Graphene Filters

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**Fig. S1.** Experimental setup for filtration experiments.

**Fig. S2.** Results of contact-angle experiments using LIG-PES membrane surfaces. (a) Unused LIG-PES electrode; the average contact angle was $\Theta = 39.7 \pm 1.1^\circ$. (b) Used upper/anodic LIG-PES electrode; $\Theta = 30.5 \pm 2.4^\circ$. (c) Used lower/cathodic LIG-PES electrode; $\Theta = 28.4 \pm 0.9^\circ$. 
Fig. S3. Comparative percentage removal of bacteria and viruses under the application of different electrical potential.

Table S1. Bacterial inactivation at a fixed vacuum pressure and varying LIG electrode configurations. 
Average flux with anode on top: 1810 L/m²•h. Average flux with cathode on top: 1794 L/m²•h.

| Electrode Configuration | Voltage (V) | Permeate Flux (L/m²•h) | Percentage of Bacteria Killed | Log Removal |
|-------------------------|-------------|------------------------|-----------------------------|-------------|
| **Anode-on-top**        | 2.5         | 1865                   | ~98.7                       | 1.9         |
|                         | 5.0         | 1722                   | >99.99                      | > 4         |
|                         | 10.0        | 1865                   | >99.99                      | > 4         |
|                         | 20.0        | 1790                   | >99.99                      | > 4         |
| **Cathode-on-top**      | 2.5         | 1790                   | ~95.4                       | 1.3         |
|                         | 5.0         | 1658                   | >99.99                      | > 4         |
|                         | 10.0        | 1865                   | >99.99                      | > 4         |
|                         | 20.0        | 1865                   | >99.99                      | > 4         |
### Table S2. Current-voltage relationship of LIG-PES electrodes.

| External Voltage (V) | Current (mA) |
|----------------------|--------------|
| 2.5                  | 6.3          |
| 5.0                  | 19.0         |
| 10.0                 | 53.8         |
| 20.0                 | 152.6        |