High-output wearable flow ring-based triboelectric nanogenerator via opposite charging intermediate layer

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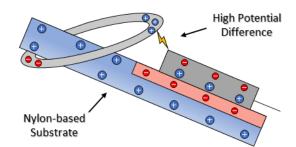
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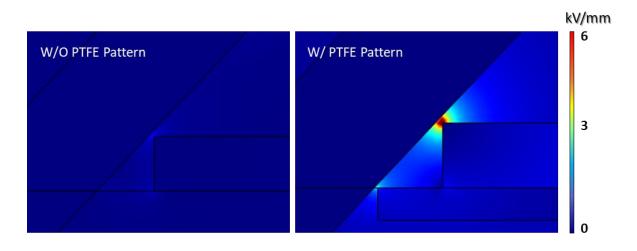
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Supplementary Information

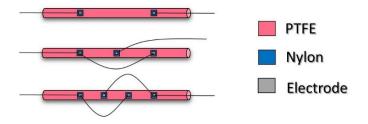
W/ PTFE Intermediate Layer



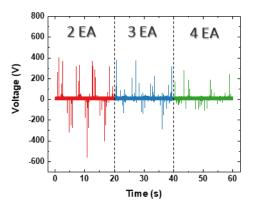
Supplementary Information 1| Schematic illustration of FR-TENG with nylon-based substrate and PTFE patterned layer



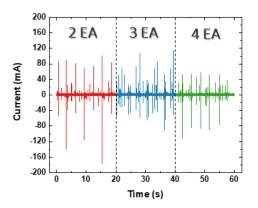
Supplementary Information 2| Simulation result of FR-TENG without and with PTFE pattern



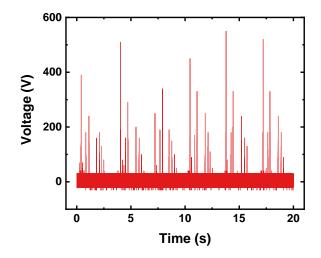
Supplementary Information 3| Schematic illustration of FR-TENG with different dielectric film and electrode number



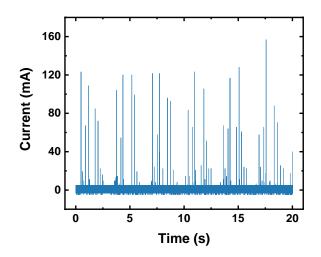
Supplementary Information 4|*V*_{OC} output of FR-TENG with different dielectric film and electrode number



Supplementary Information 5| *I*_{CC} output of FR-TENG with different dielectric film and electrode number



Supplementary Information 6| Voc graph of rectified sleeve-type FR-TENG



Supplementary Information 7 | I_{CC} graph of rectified sleeve-type FR-TENG

Supplementary Video 1

 $https://www.dropbox.com/s/vsv1y4cxdvohaay/Supplementary\%20Video\%201.mp4?dl{=}0$