Supporting Information

Wind-Wave Synergistic Triboelectric Nanogenerator：Performance Evaluation Test and Potential Applications in Offshore Areas

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Content

Supplemental Figures

Supplemental Notes

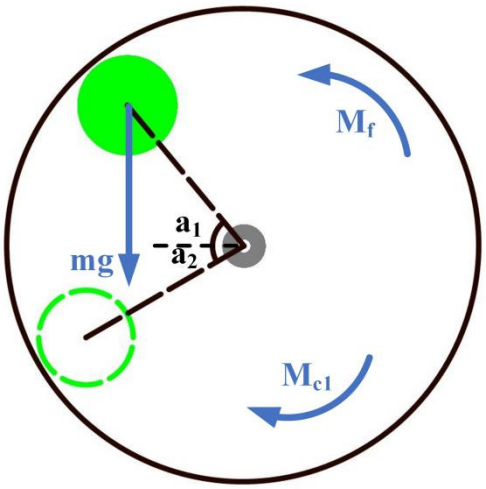

Figure S1. Force analysis of the energy storage stage

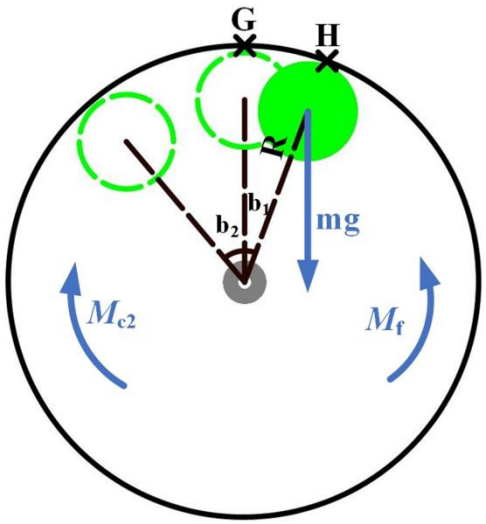

Figure S2. Force analysis of the energy release stage

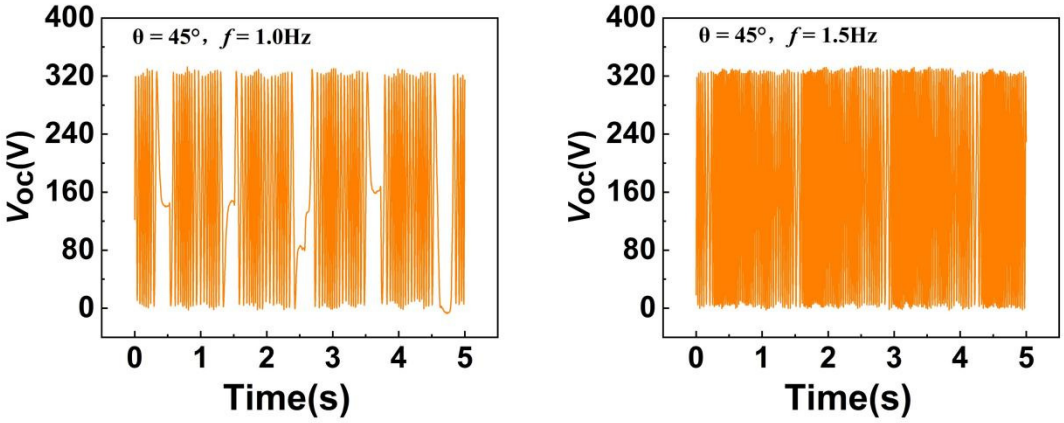

Figure S3. Comparison of output voltage curves under intermittent rotation and

continuous rotation

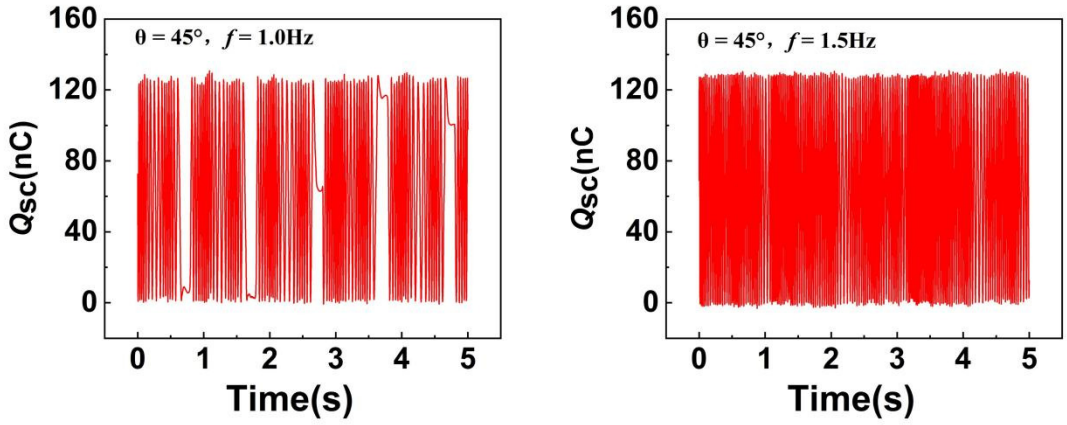

Figure S4. Comparison of transferred charge curves under intermittent rotation and continuous rotation

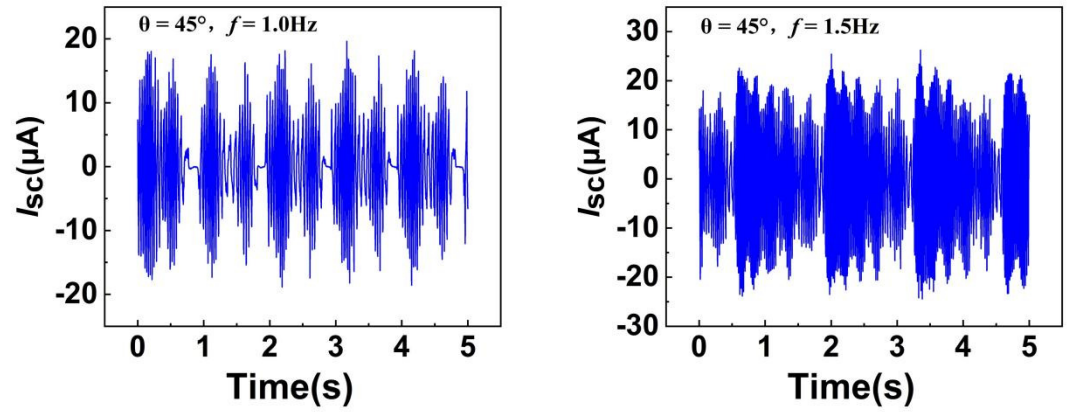

Figure S5. Comparison of output current curves under intermittent rotation and continuous rotation

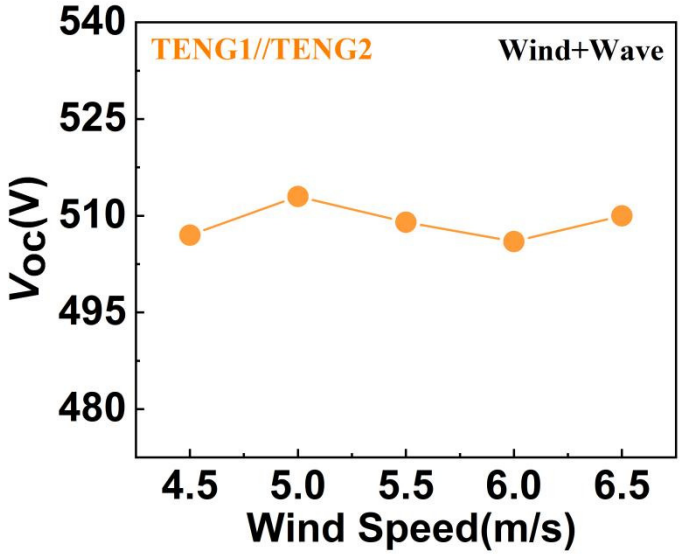

Figure S6. The open-circuit voltage of WWS-TENG under the simulated wind-wave superposition excitation with different wind speeds

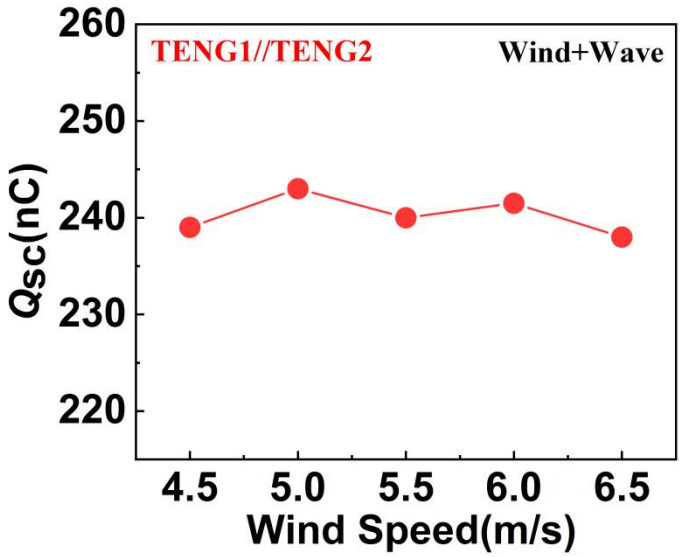

Figure S7. The transferred charge of WWS-TENG under the simulated wind-wave superposition excitation with different wind speeds

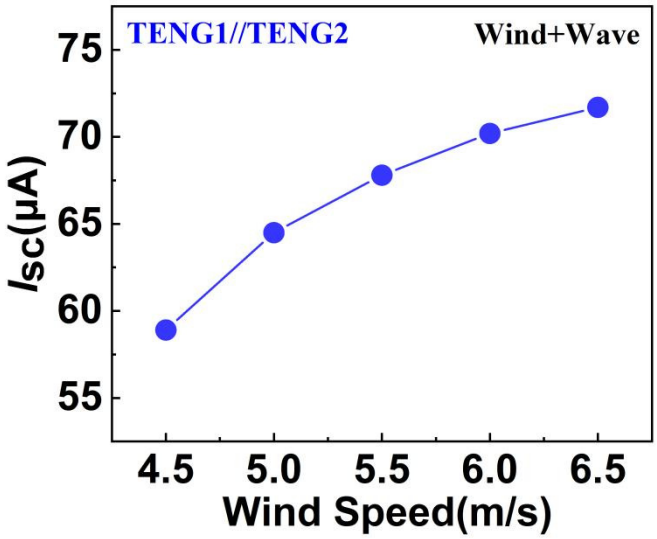

Figure S8. The short-circuit current of WWS-TENG under the simulated wind-wave superposition excitation with different wind speeds

Note S1. The moment balance equation of the energy storage stage

Based on force analysis in **Figure** S1, the moment balance equation of the center shaft on which the acrylic disc with FEP and mass block is fixed is as follows:

$$J\frac{\mathrm{d}^2(\mathrm{a}_1+\mathrm{a}_2)}{\mathrm{dt}_1^{\,2}}=M_{\mathrm{c1}}-\mathrm{Rmgcosa}_1-M_{\mathrm{f}} \tag{S1}$$

Where J is rotational inertia of the center shaft on which the acrylic disc with FEP and mass block, R is the distance from the center of rotation to the center of the mass block, the angular displacement of acrylic disc with FEP and mass block is divided into angle a_1 and a_2 by a horizontal line, g is the gravitational acceleration, m is the weight of the mass block, M_{f} is the moment of friction force on the the acrylic disc with FEP and mass block, and M_{c1} is the moment acting on this center shaft.

Note S2. The moment balance equation of the energy release stage

Based on force analysis in **Figure** S2, the moment balance equation of the center shaft on which the acrylic disc with FEP and mass block is fixed is as follows:

$$J\frac{\mathrm{d}^2(\mathrm{b}_1+\mathrm{b}_2)}{\mathrm{dt}_2^{\,2}}=M_{\mathrm{c2}}+\mathrm{Rmgsinb}_1-M_{\mathrm{f}} \tag{S2}$$

Where J , R, g, m and M_{f} are depicted in **Note S1**, the angular displacement of acrylic disc with FEP and mass block is divided into angle b_1 and b_2 by a vertical line, M_{c2} is the moment acting on this center shaft.