Supporting Information

Humidity Enhanced Silicon-based Semiconductor Tribovoltaic Direct-Current Nanogenerator

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Related Reference [1-6] in Supplementary Materials.

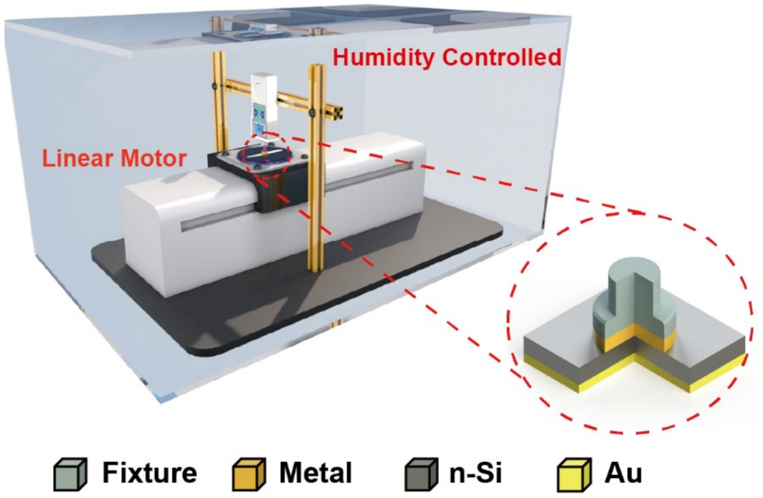

Figure S1. The humidity control and electrical output measuring platform.

Table S1. Default parameters of the experiment setup

Materials pair	Sliding velocity	Sliding block area	Pressure	Resistivity
Cu(C)/n-type doped silicon	10 cm/s	2 cm^2	5 N	0.1-0.5 Ω·cm

Table S2. Comparison of the charge density with that in the previous humidity-resistive TENGs[1-6]

Materials	**AC/DC**	**Charge density(mC/m^2)**	**Humidity (RH)**	**Internal Resistance (kΩ)**	**Ref.**
Wood+FEP	AC	0.01	75%	-	[1]
FZCT+PTFE	AC	0.09	80%	1000	[2]
PTFE+Fur	AC	0.1152	90%	18000	[3]
PDMS+Cu	AC	0.175	90%	10000	[4]
PVDF+PVA	AC	0.244	90%	-	[5]
Cu+PVC/	DC	2.97	90%	-	[6]
Cu+Si	**DC**	**12.6**	**90%**	**50**	**This work**

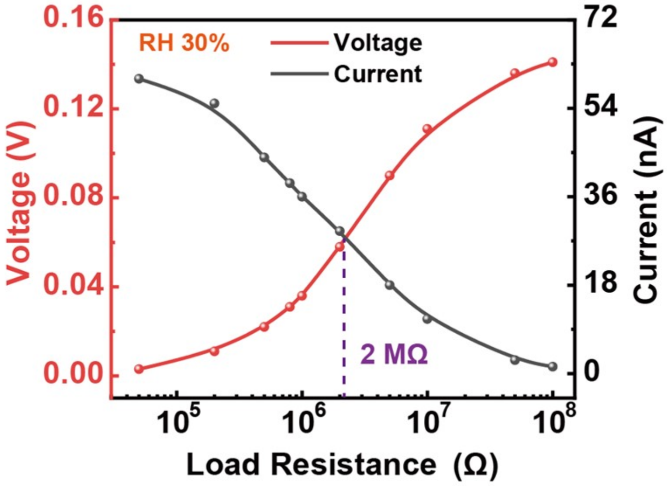

Figure S2. Impedance-matching curve of TVNG based on n-Si/Cu in RH 30% humidity.

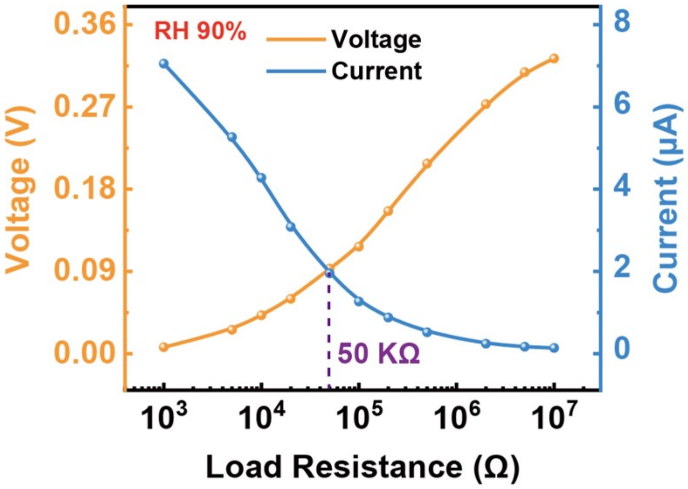

Figure S3. Impedance-matching curve of TVNG based on n-Si/Cu in RH 90% humidity.

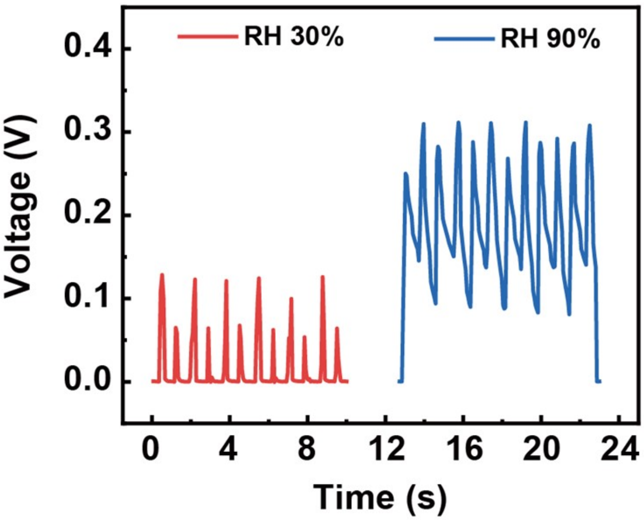

Figure S4. Open-circuit voltage of TVNG based on n-Si/C between RH 30% and RH 90% humidity.

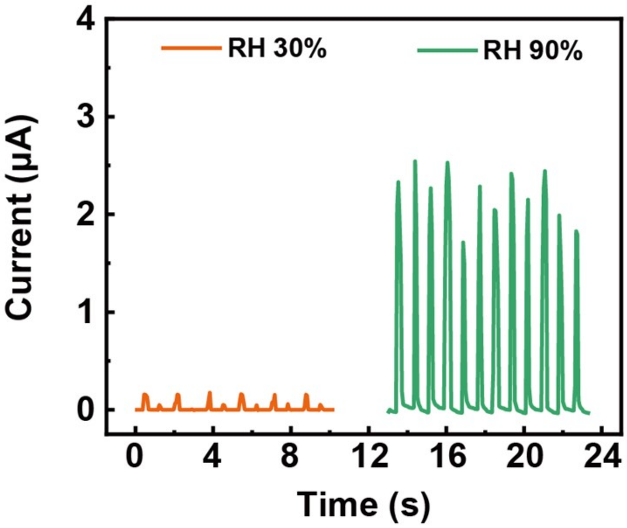

Figure S5. Short-circuit current of TVNG based on n-Si/C between RH 30% and RH 90% humidity.

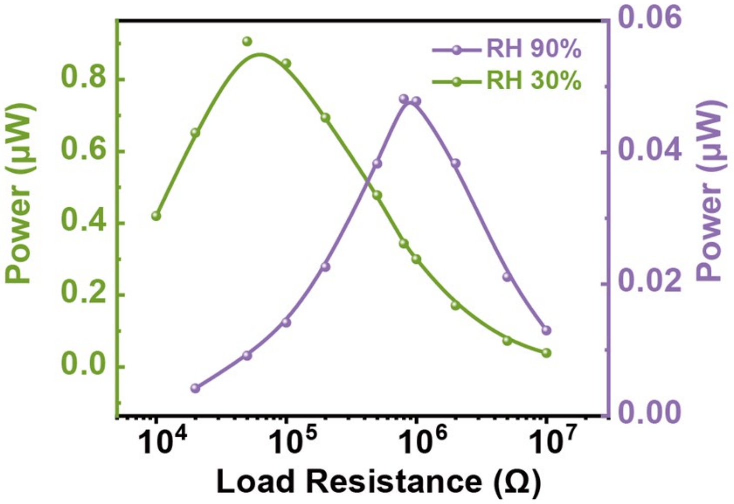

Figure S6. Power density of the TVNG based on n-Si/C between RH 30% and RH 90% humidity.

References

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