

Supporting Information

Lightweight, Mesoporous, and Highly Absorptive All-Nanofiber Aerogel for Efficient Solar Steam Generation

*Feng Jiang^{1,2†}, He Liu^{2†}, Yiju Li², Yudi Kuang², Xu Xu², Chaoji Chen², Hao Huang³,
Chao Jia², Xinpeng Zhao⁴, Emily Hitz², Yubing Zhou², Ronggui Yang⁴, Lifeng Cui^{1*},
Liangbing Hu^{2*}*

**Lifeng Cui: Email: lcui@dgut.edu.cn*

**Liangbing Hu: Email: binghu@umd.edu*

1. School of Environment and Civil Engineering, Dongguan University of Technology,
Guangdong 523808, China
2. Department of Materials Science and Engineering, University of Maryland, College
Park, Maryland, 20742
3. Department of Mechanical Engineering, University of Maryland, College Park,
Maryland, 20742
4. Department of Mechanical Engineering, University of Colorado, Boulder, Colorado,
80309

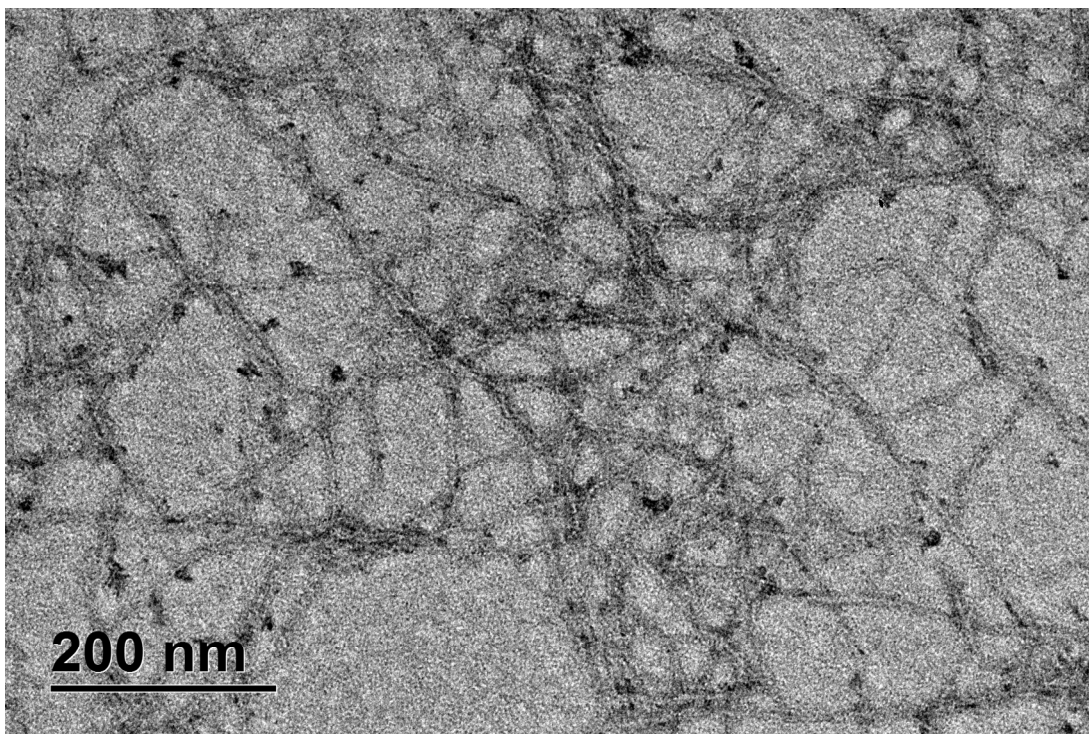


Figure S1. TEM image of the CNFs, showing uniform cellulose nanofibrils used for assembly of CNF aerogel. The CNFs show a uniform dimension of 3-5 nm wide and several hundred nm to 1 μm long.

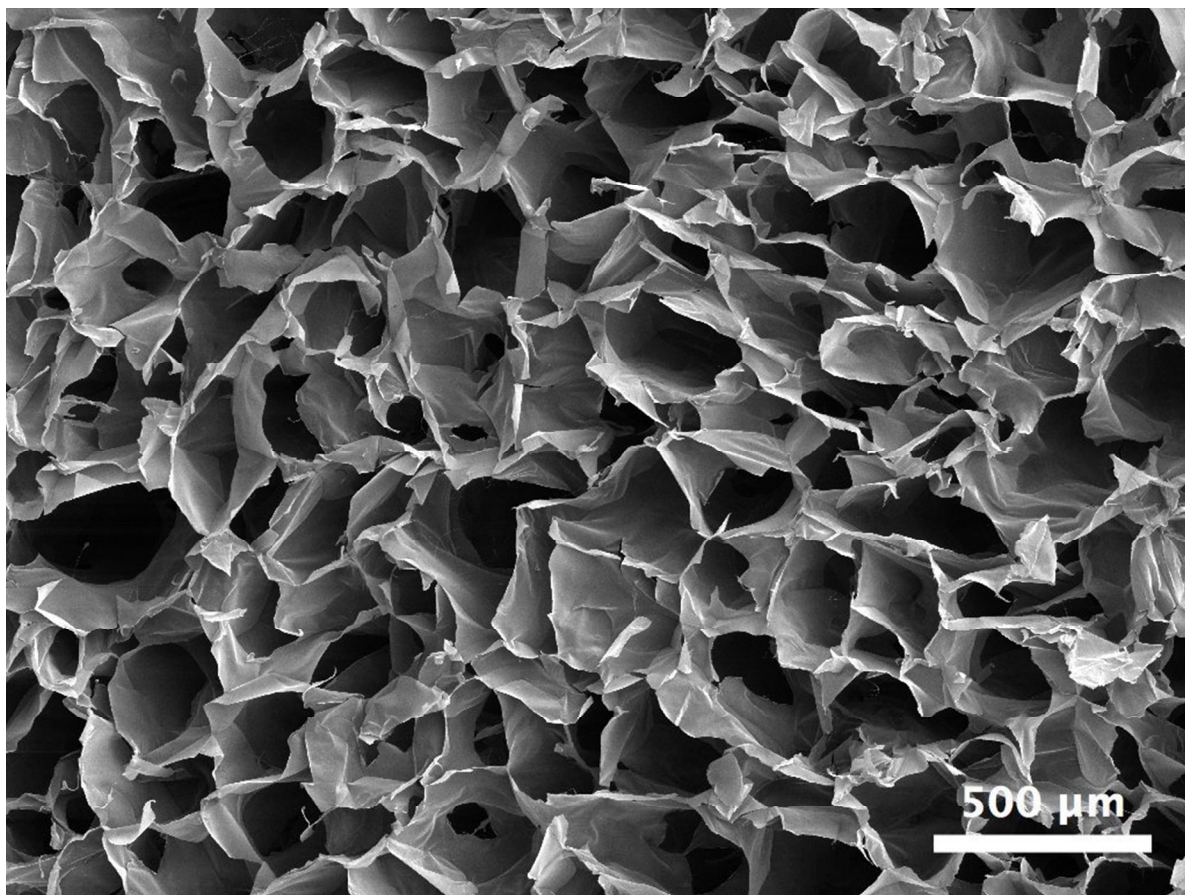


Figure S2. SEM image of the top surface of CNF aerogel, showing honeycomb structure due to the ice crystal templating

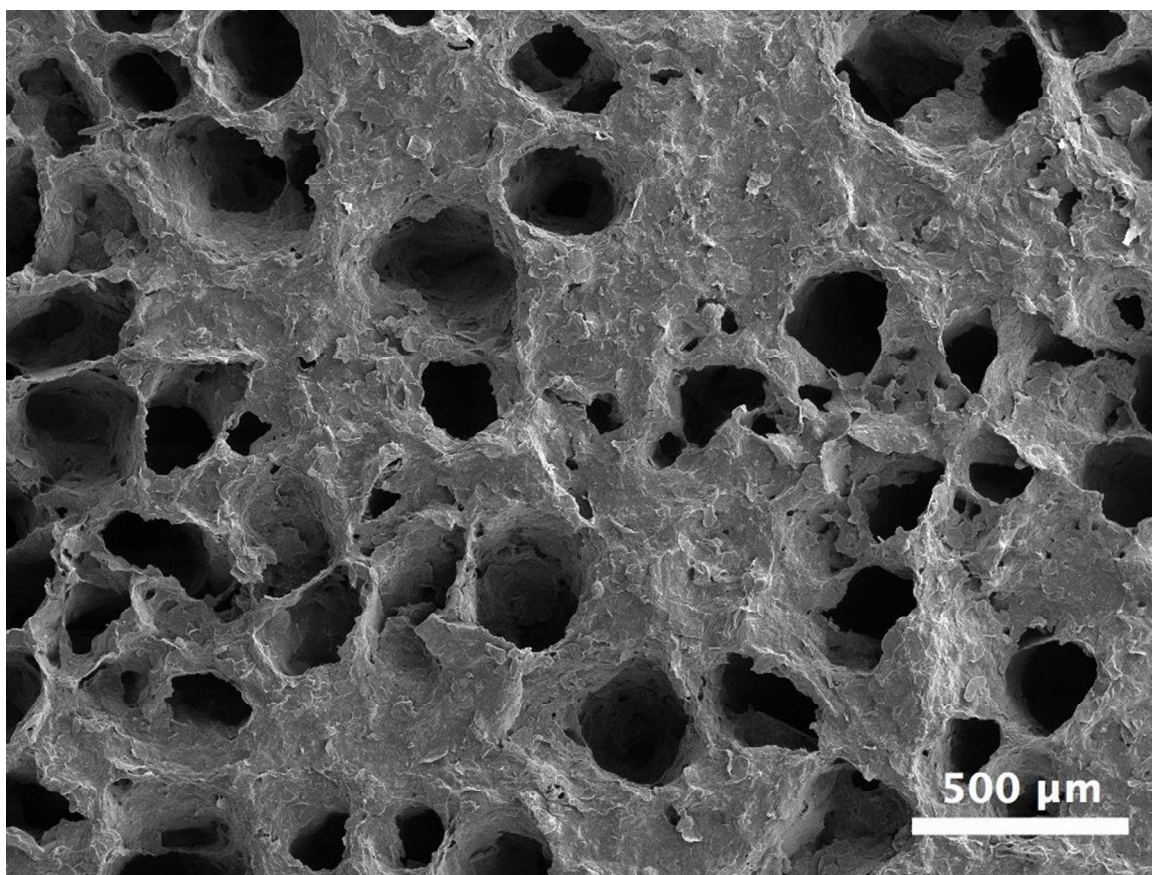


Figure S3. SEM image of the top surface of CNF-CNT aerogel, showing completely covered with a layer of CNTs.

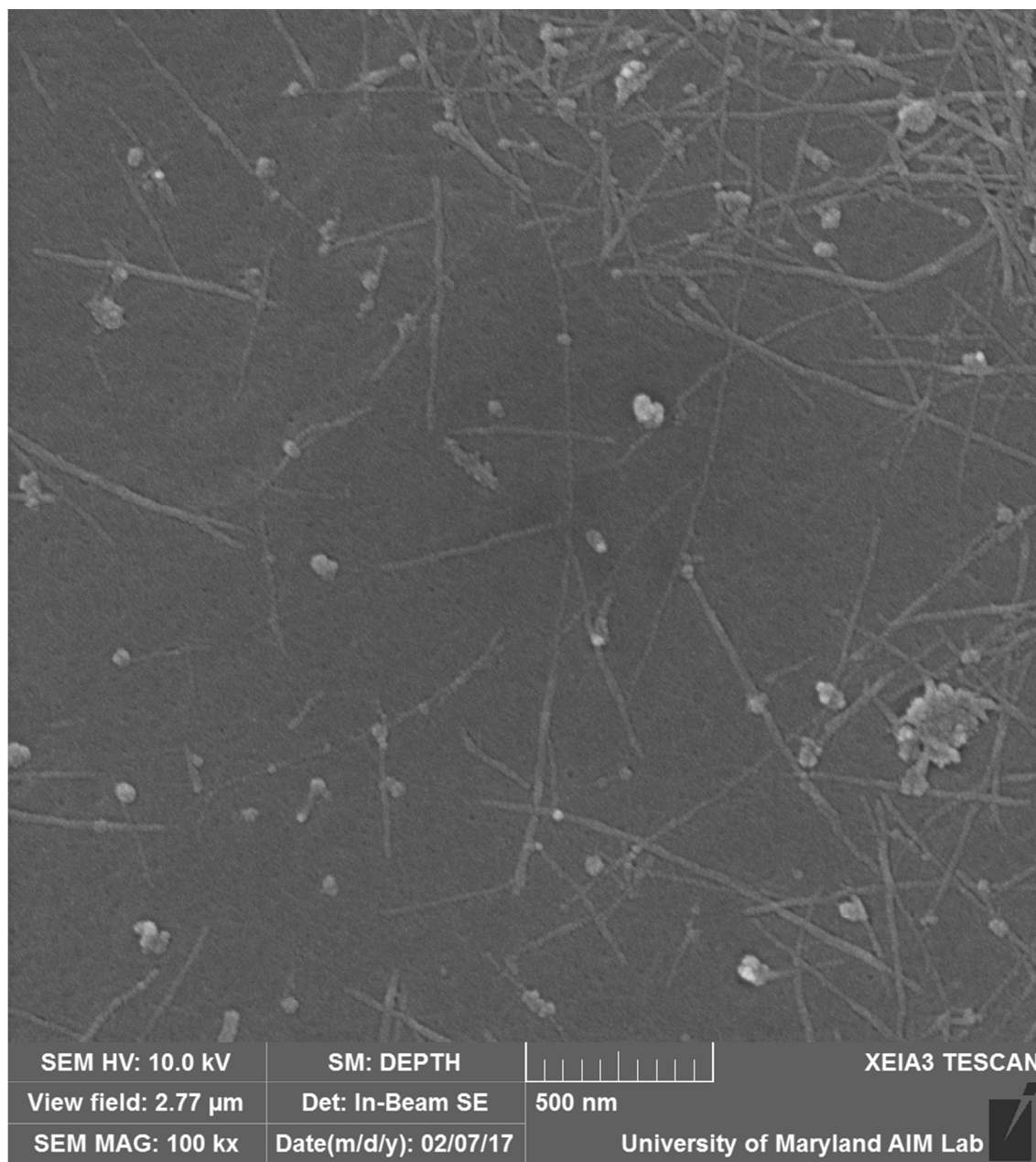


Figure S4. Cross section SEM image of CNF-CNT aerogel at 0.5 mm below the top CNT coating layer, showing sparsing CNTs on the surface of CNF film.

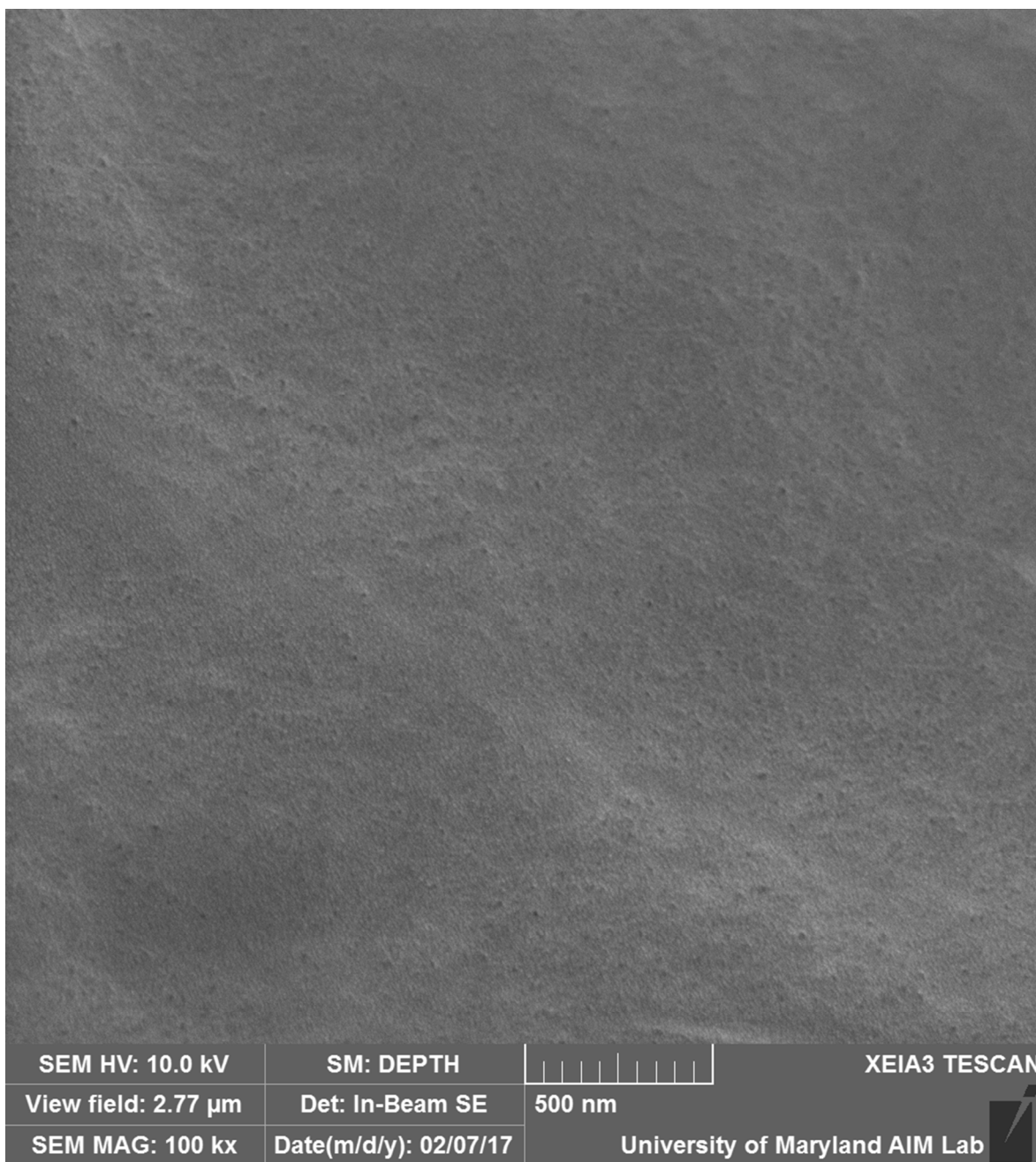


Figure S5. Cross section SEM image of CNF-CNT aerogel at the bottom, showing pure CNF films with numerous interfibril mesopores, but without signs of CNT.

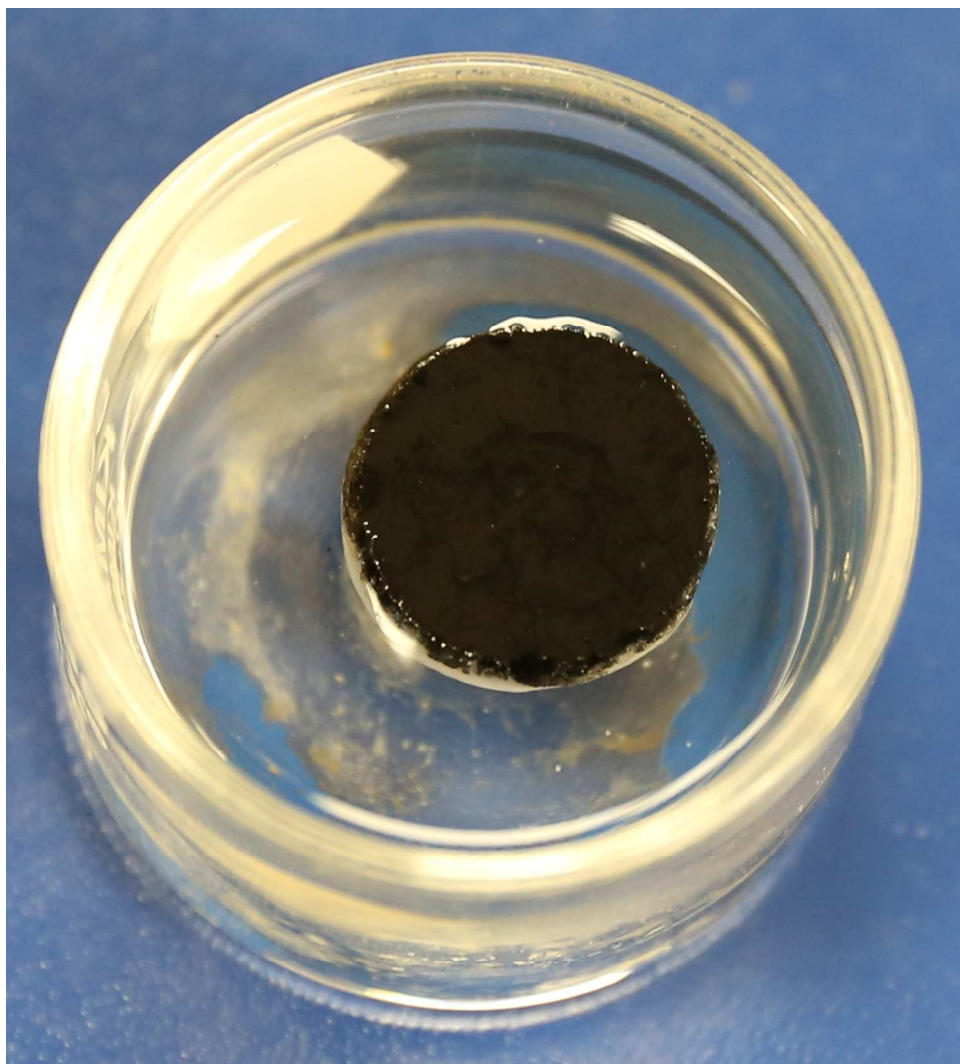


Figure S6. Digital photos of the CNT-CNT aerogel floating on the air-water interface, showing that the aerogel is hydrophilic and water can be absorbed into the aerogel.

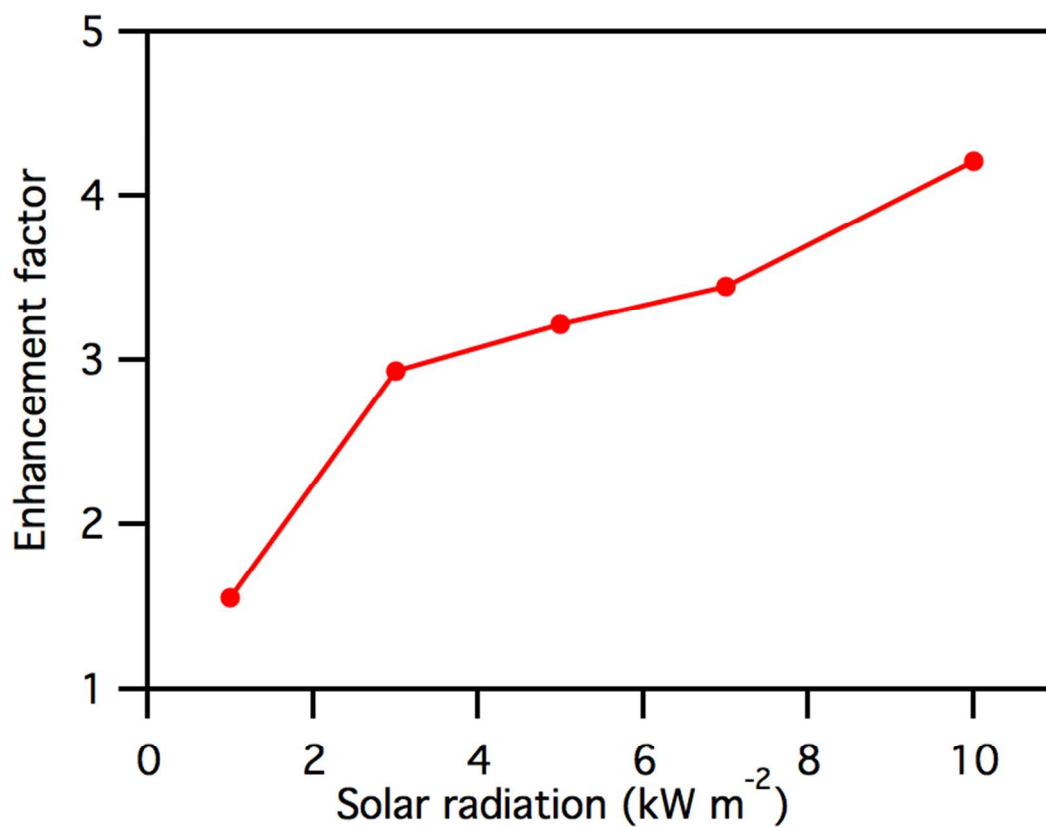


Figure S7. The enhancement factor (E.F.) of solar steam generation by CNF-CNT bilayer aerogel as compared to the pure CNF aerogel, as determined by

$$E.F. = \frac{E.R._{CNF-CNT}}{E.R._{CNF}} E.F. = \frac{E.R._{CNF-CNT}}{E.R._{CNF}}.$$