Supporting Information -

Teslaphoresis of Carbon Nanotubes

Lindsey Rae Bornhoeft,[1,4,5] Aida C. Castillo,[2] Preston Richard Smalley,[6] Carter Kittrell,[1,3] Dustin K. James,[1] Bruce E. Brinson,[1] Thomas R. Rybolt,[4] Bruce R. Johnson,[1,3] Tonya Kay Cherukuri,[1,4] and Paul Cherukuri[1,3,4]*

[1]Department of Chemistry, [2]Department of Materials Science and NanoEngineering,

[3]Smalley-Curl Institute, Rice University, 6100 Main Street, Houston, TX 77005, USA

[4]Department of Chemistry and Physics, University of Tennessee-Chattanooga,

615 McCallie Ave, Chattanooga, TN 37403, USA

[5]Department of Biomedical Engineering, Texas A&M University,

101 Bizzell St, College Station, TX, 77843, USA

[6]Second Baptist School, 6410 Woodway Drive, Houston, TX 77057, USA

**Email: paul.cherukuri@rice.edu*

Supplementary Materials:

Supplementary Figures S1-S6

Supplementary Video S1-S7

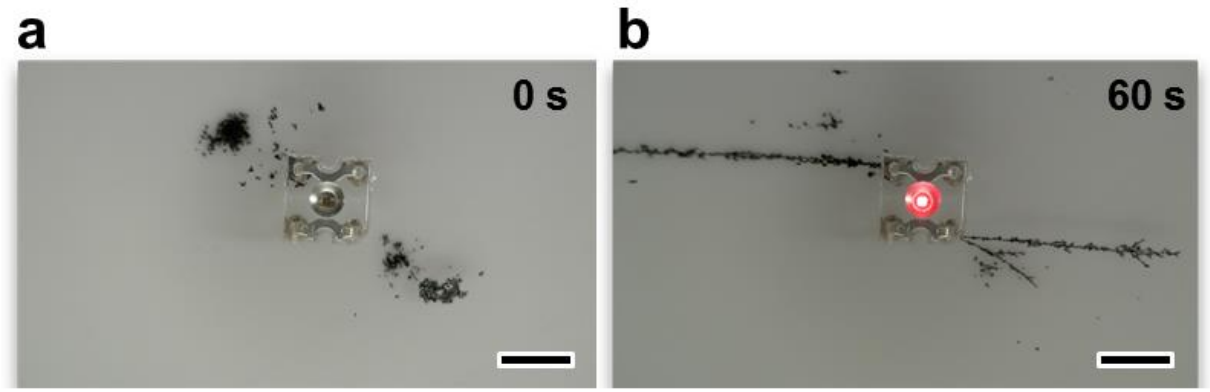

Figure S1. (a) 4 pin red LED placed in IPA with nanotube powder near each electrode. (b) At 60 s after TEP the nanotubes assemble into wires and extract enough energy from the field to light the LED. Scale bars are 1 cm.

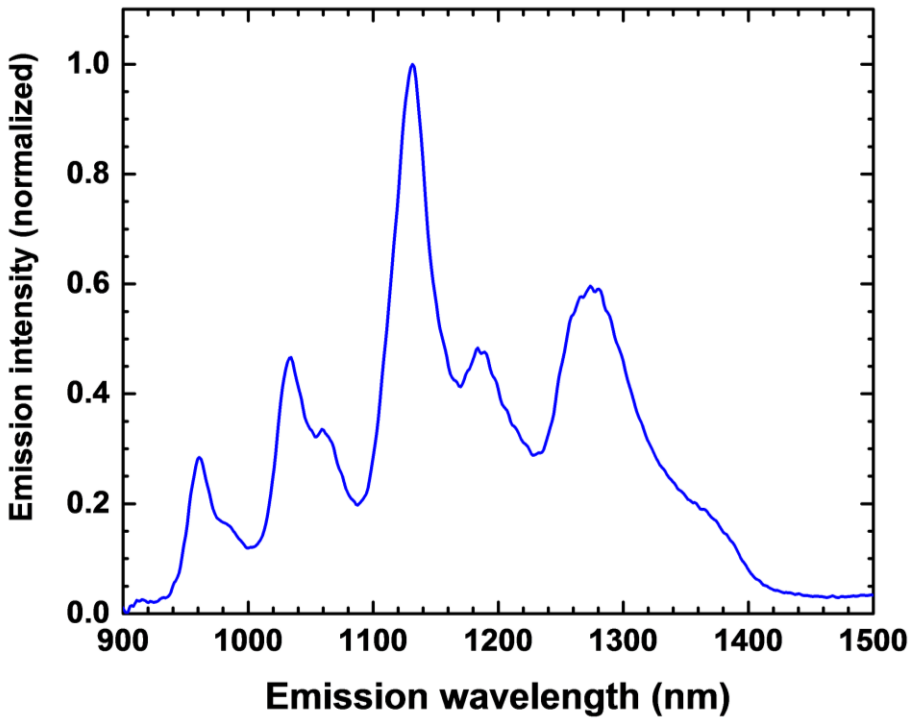

Figure S2. Normalized NIR emission spectrum from individualized single-walled CNTs wrapped in Pluronic® showing distinct spectral features of a well-debundled suspension.

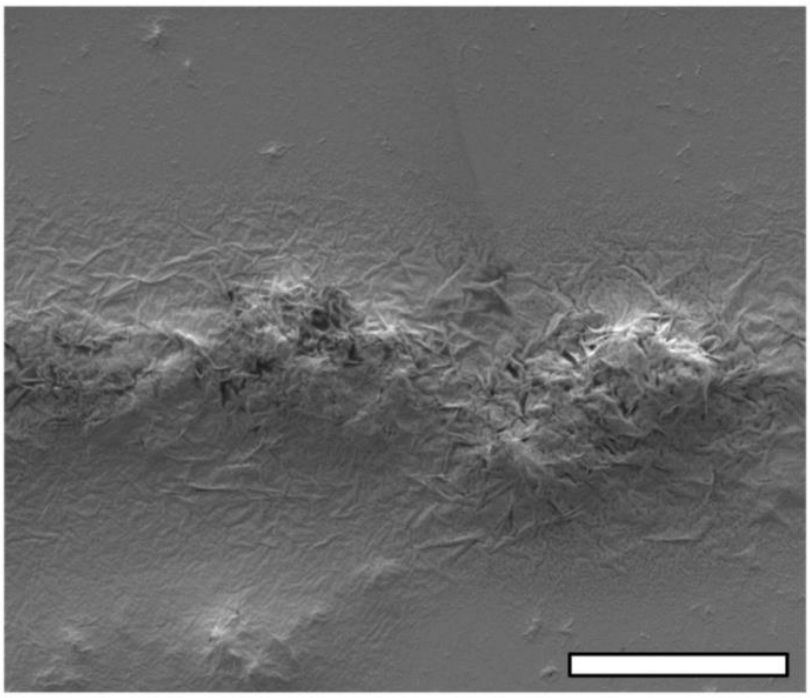

Figure S3. SEM image of a TEP assembled Pluronic® coated nanotube wire sputter-coated with gold. Scale bar = 20 µm.

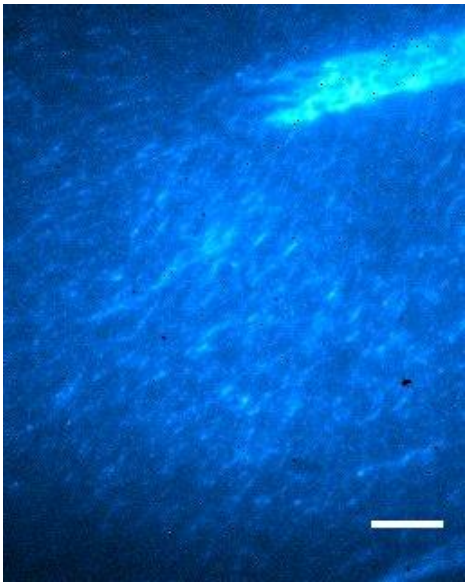

Figure S4. NIR photoluminescence microscope image (60×) showing assembly pattern of individual nanotubes (single bright spots) with their long axis towards the end of a larger diameter wire. Scale bar = 20 μm.

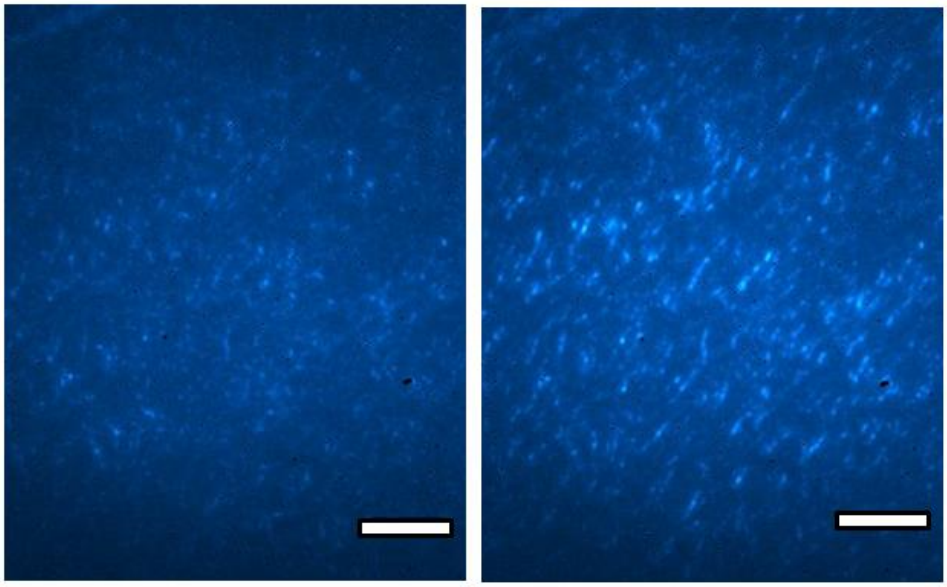

Figure S5. NIR photoluminescence images (60×) with two different excitation polarization angles of TEP aligned individual nanotubes. Left –laser excitation polarization is perpendicular to the majority of nanotubes resulting in reduced overall emission intensity. Right – laser excitation polarization is parallel to the majority of nanotubes resulting in overall increased emission intensity. Scale bars are 25 microns.

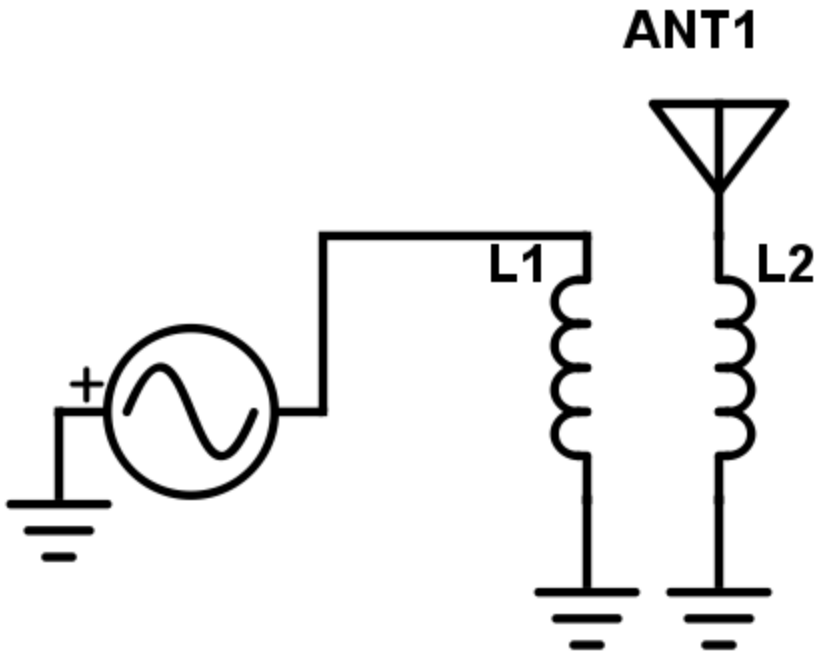

Figure S6. Circuit diagram of Teslaphoretic system. L1 and L2 are the primary and secondary coil, respectively. The antenna (disk) is conductively coupled to the output of L2.