Electronic Supplementary Information

Arranging junctions for nanofibers

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Experimental

Preparation of precursor solution: We dissolved a measured amount of poly(methyl methacrylate) (PMMA, M_W≈350000, Aldrich) granules in the solvent of N,N-Dimethylformamide (DMF) and tetrahydrofuran (THF) (1:1 by weight), stirred the mixture at 50 ^oC in water bath for 2 h, and finally obtained transparent solution. Polystyrene (PS, M_W≈250000, Acros Organics) was dissolved in DMF/THF (1:1) at room temperature. Subsequently, epoxy resin (E51, http://www.wxszc.com) and corresponding curing agent (615, http://www.danbao-resin.com/) at the weight ratio of 5:1 were added into the PMMA and PS solutions, respectively, and then stirred thoroughly to achieve uniform solutions.

Electrospinning: We employed a DC high-voltage generator (TeslaMan, TXR1020P30-50) to supply high voltages ranging from 0 to 50 kV. We loaded the solution into a 2 mL syringe with a flattened needle. A syringe pump was used to feed the polymer solution. A sheet of aluminum foil was placed under the syringe as the

collector. The anode was connected with the needle, and the cathode with the aluminum foil. The ES apparatus was enclosed in a perspex box, where temperature and humidity were maintained at 30 ^{o}C and 30-40 %, respectively. The ES mats were finally placed in an oven at 80 ^{o}C for 5h, when epoxy resin cured.

Scanning Electron Microscopy (SEM): We used SEM (FEI, Inspect S and Quanta 400 FEG) to image the details of electrospun fibrous mats. All samples were sputter-coated with gold prior to observation with SEM (resulting in an Au coating of about 10 nm). SEM was operated at an accelerating voltage of 10 kV.

Water contact experiments: Water contact experiments were performed on a contact angle instrument (Dataphysics, OCA 20) at room temperature. The volume of water drop we used was approximately 0.5 μL. Before the measurements electrospun fibrous membrane together with aluminum foil was adhered on a piece of glass slide, resulting in planar horizon. We performed the water drop experiments to test the mechanical stability other than contact angle of the ES mats.

Micro-manipulation experiments: We used a pair of micro-manipulators with a sharp tip to manipulate the ES fibers. Two micro-manipulators (http://www.derltech.com.cn) fitted with sharp probe needles are set inside SEM. The probe needles can be moved in 3-D space under the controller, respectively; and thus sample can be precisely handled by the micro-manipulators. The ES mats were deposited on silicon wafer.

Movie S1. Movie S1a, water contact experiment on PMMA ES mats without junctions; Movie S1b, water contact experiment on PMMA/epoxy ES mats with junctions.

Movie S2. Movie S2a, micro-manipulation experiment on PMMA ES mats without junctions; Movie S2b, micro-manipulation experiment on PMMA/epoxy ES mats with junctions.