

Supporting Information

Glowing stereocomplex biopolymers are generating power: a polylactide/carbon quantum dot hybrid nanofiber with high piezoresponse and multicolor luminescence

Yali Xu ^{a, †}, Long Jin ^{a, †}, Xuebing He ^a, Xi Huang ^a, Meilin Xie ^a, Chuanfeng Wang ^a,
Chaoliang Zhang ^c, Weiqing Yang ^{a, **}, Fanbin Meng ^{a, ***}, Jun Lu ^{a, b, #, *}

^a Key Laboratory of Advanced Technologies of Materials, Ministry of Education, School of Materials Science and Engineering, Southwest Jiaotong University, Chengdu 610031, Sichuan, China

^b State Key Laboratory of Polymer Materials Engineering, Sichuan University, Chengdu 610065, Sichuan, China

^c State Key Laboratory of Oral Diseases, West China Hospital of Stomatology, Sichuan University, Chengdu 610041, Sichuan, China

[†] These authors equally contributed to this work.

[#] Other used names Jun Lv and Jun Lyu.

^{*} Corresponding author.

^{**} Corresponding author.

^{***} Corresponding author.

E-mail address: junluprc@hotmail.com (J. Lu), wqyang@swjtu.edu.cn (W.Q. Yang), mengfanbin_wing@126.com (F.B. Meng).

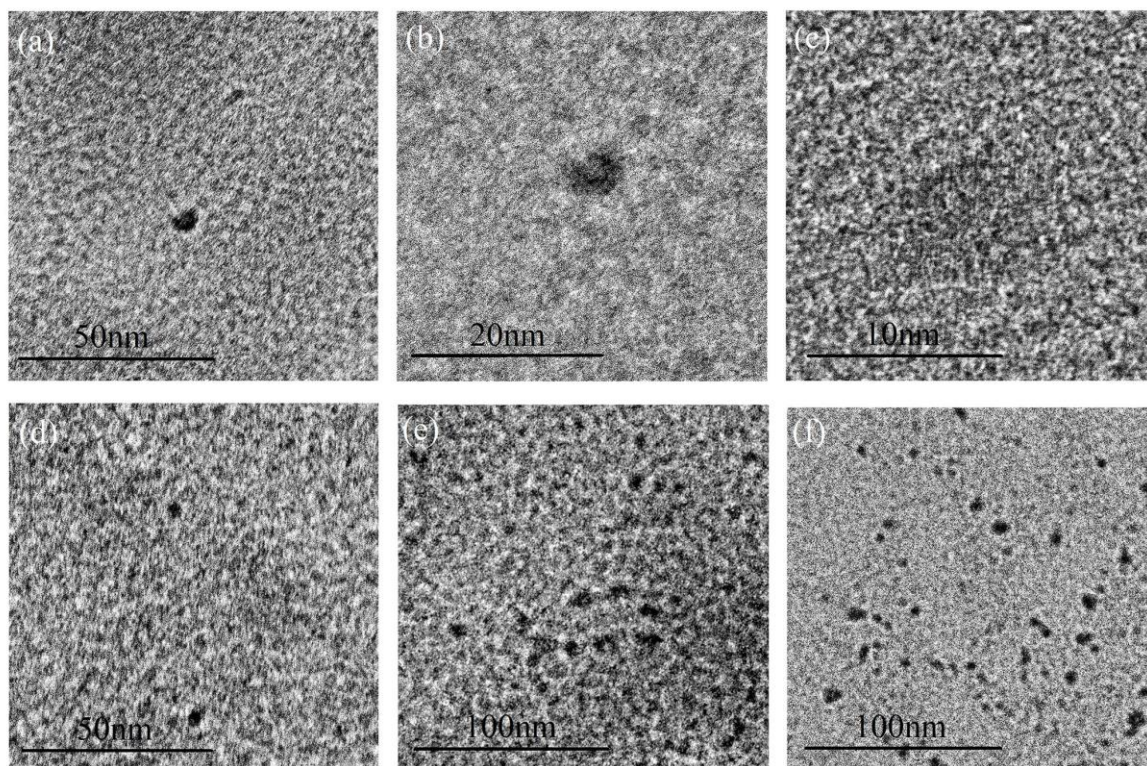


Fig. S1. Typical TEM photographs of the CQDs in a dilute solution (a-d), showing the size and morphologies of the original CQDs, and the representative TEM images of the as fabricated PDLA/PLLA/CQDs composites with 1 wt.-% (b) and 2 wt.-% (c) CQDs concentrations, respectively, suggesting the CQDs intrinsically tend to aggregate within nanoscale in the polymer matrix, and the size of the CQDs aggregates increased with the increase of CQDs loadings.

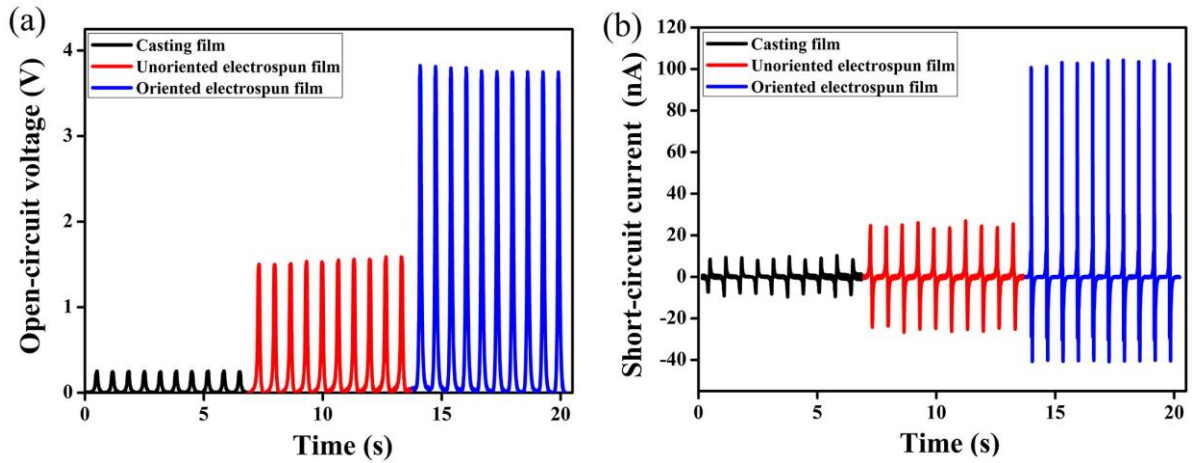


Fig. S2. Open-circuit voltage (a) and short-circuit current (b) of the PDLA_{49.5}/PLLA_{49.5}/CQD₁ based solution casting film, unoriented electrospun nanofiber film and oriented electrospun nanofibrous film, generated at a stimulated frequency of 1.5 Hz and applied force of 10 N. Each sample has a 7-layer stack, with the size of 2 cm×2 cm. Other process being the same, the rotating speed of the receiving drum was 0 and 1400 r/min, respectively, during the fabrication of the unoriented and oriented electrospun nanofibrous films.

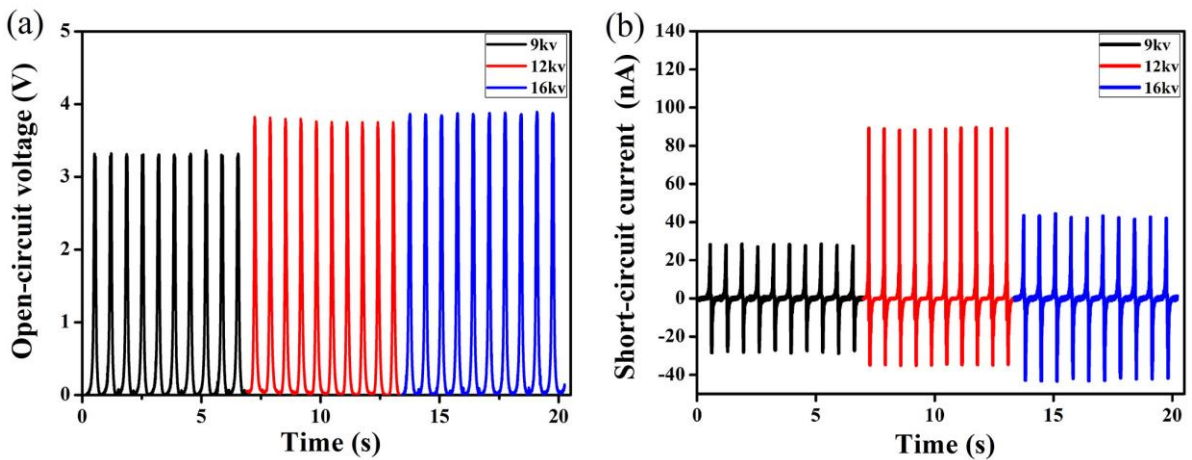


Fig. S3. Open-circuit voltage (a) and short-circuit current (b) of the electrospun PDLA_{49.5}/PLLA_{49.5}/CQD₁ nanofibrous films obtained at different spinning voltages, generated at a stimulated frequency of 1.5 Hz and applied force of 10 N. Each sample has a 7-layer stack, with the size of 2 cm×2 cm.

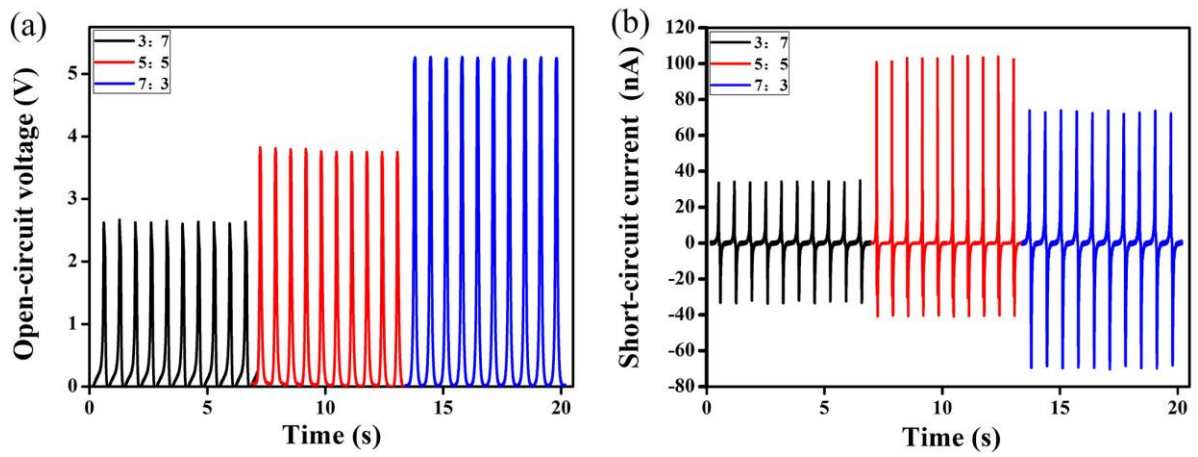


Fig. S4. Open-circuit voltage (a) and short-circuit current (b) of the electrospun PDLA_x/PLLA_y/CQD₁ nanofibrous films with various x/y ratios, generated at a stimulated frequency of 1.5 Hz and applied force of 10 N. Each sample has a 7-layer stack, with the size of 2 cm×2 cm.