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Supplementary Information

Solution-processed organic single-crystalline semiconductors with fence-like shape *via* ultrasound concussion

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Fig. S1 Optical image of long C₈-BTBT single crystals.



Fig. S2 Optical images of morphological change of C_8 -BTBT crystals using solution without PMMA from 6 to 21 min.



Fig. S3 Optical image of C₈-BTBT single crystals *via* SVA. C₈-BTBT and PMMA were mixed with the weight ratio of 1:1 and dissolved in anisole (1 wt %) and spin-coated onto SiO₂/Si substrates. Then the samples were stuck on the top side down to the Petri dish cover over the bottom dish half-filled by the chlorobenzene. After 12 hours, the C₈-BTBT crystals were formed on the substrates. The length of these crystals is mostly around 100 μ m.



Fig. S4 Optical images of morphological change of C₈-BTBT crystals from 6 to 30 min.



Fig. S5 Optical image of C_8 -BTBT crystals formed without ultrasound.



Fig. S6 Optical image of C_8 -BTBT crystals formed with weaker ultrasound.



Fig. S7 (a) and (b) Polarized optical microscopy images of C_8 -BTBT crystals.



Fig. S8 (a) Transfer characteristics of a device with the highest mobility ($\mu_{FET} = 6.0 \text{ cm}^2 \text{ V}^{-1} \text{ s}^{-1}$) operated at -20 V drain voltage under vacuum. The effective channel length is L = 485 µm and the channel width is W = 25 µm. Insert is optical image of device fabricated for G-GFP. (b) Output characteristics at gate voltages of -15, -20, -25, and -30 V of the C₈-BTBT crystal-based transistor.



Fig. S9 Contact resistance calculated using GFP technique.