

Description of Additional Supplementary Files

Supplementary Movie 1: Generation of BoL-LC from BoL-C. This microscope movie shows how BoL-C changes to BoL-LC through the dehydration reaction.

Supplementary Movie 2: Self-organization ability of BoL-LC. One spherulite droplet of BoL-LC is transformed into three spherulite droplets by division. This feature is compared with the solid BoL-C.

Supplementary Movie 3: Incombustibility of BoLLC. BoL-LC and graphene nanoplatelets on quartz substrates are exposed to direct fire. Unlike graphene derivatives, BoL-LC is incombustible even at the decomposed temperature over 370 °C.

Supplementary Movie 4: Dissolution behavior of BoL-C. BoL-C (left) or graphene nanoplatelets (right) are added to the N-methylpyrrolidone at 150 °C. In this temperature, BoL-C can change to BoL-LC in the solvent by the dehydration reaction. The BoL sample dissolves rapidly, while graphene nanoplatelets do not.

Supplementary Movie 5: Dynamic moving of BoLLC on electrodes. The liquid BoL-LC is placed sparsely on a comb electrode (dark lines from top right to bottom left). BoL-LC, which consists of ordered 2D atomic sheets, exhibits dynamic activity under an alternating voltage (5 V, 1 Hz) at 50 °C.