Supplementary Information

Identify Kinetic Features of Fibers Growing, Branching, and Bundling in Microstructure Engineering of Crystalline Fiber Network

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1. The protocol of thermal control used for the spherulitic domains network and interconnected fibers network

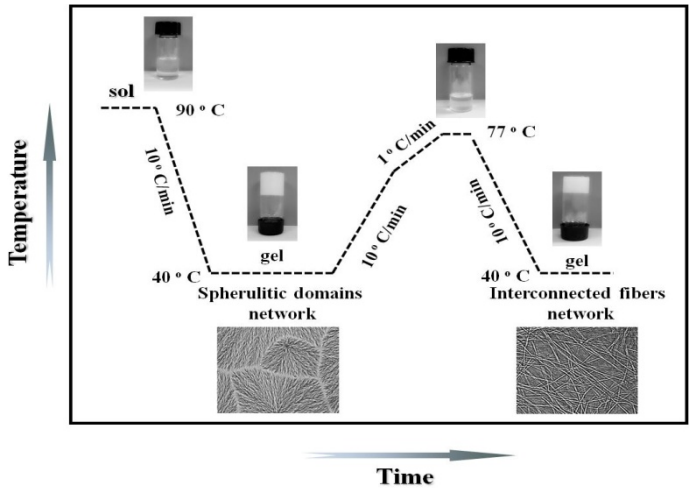

Fig. S1 The protocol of thermal control used for the fiber network formation in GP-1/PG gels.

2. X-ray diffraction spectra

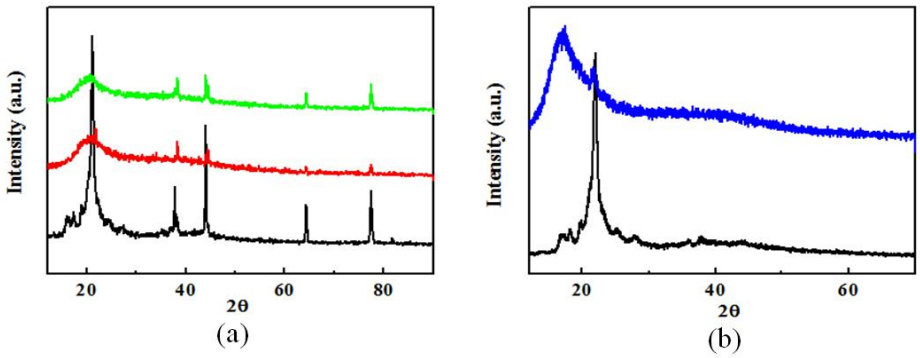

Fig. S2 XRD spectra (a) GP-1 powder (Wako Pure Chemical Industries, Ltd, black line), the interconnected fibers network of GP-1/PG (red line), and the spherulitic domains network of GP-1/PG (green line), (b) for GP-1 powder (Kishimoto Sangyo Asia, black line), the interconnected fibers network of GP-1/ISA (blue line).

3. Kinetic analysis of spherulitic domains network and interconnected fibers network of GP-1/PG system

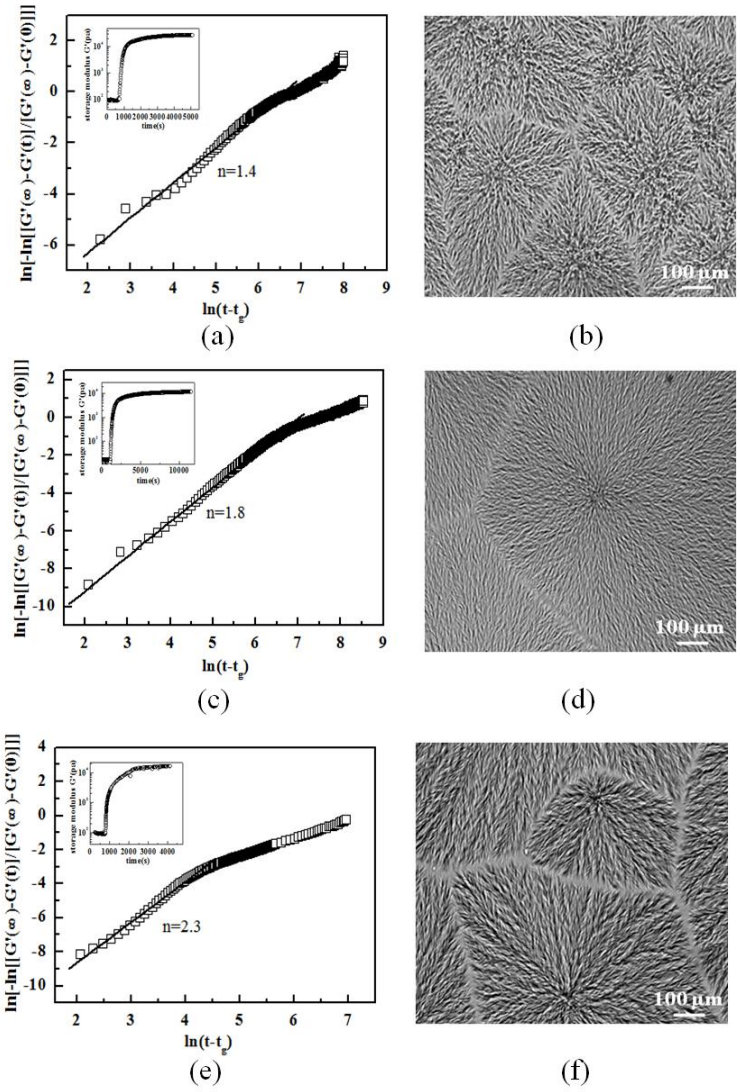

Fig. S3 The Avrami plots of dynamic rheological data according to eqn (5) for GP-1/PG systems at different temperatures and concentrations. Inset: Evolution of storage modulus in the process of sol-to-gel transition. (a) 3wt % GP-1/PG system at 30℃; (c) 3wt % GP-1/PG system at 50℃; (e) 4wt % GP-1/PG system at 40℃. (b), (d) and (f) are the corresponding optical micrographs.

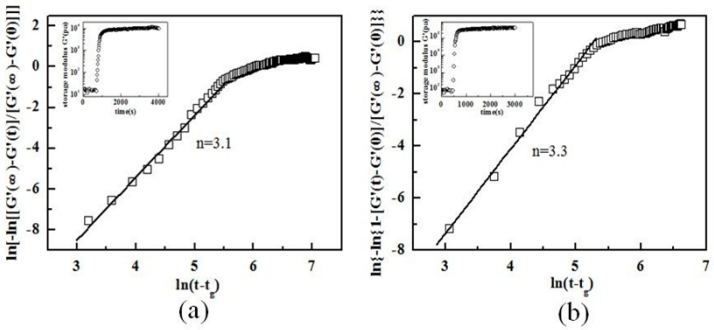

Fig. S4 The Avrami plots of dynamic rheological data according to eqn (5) for the formations of the interconnected fiber network from GP-1/PG system at 50 ℃: (a) 3 wt %; (b) 5 wt %. Inset: Evolution of storage modulus in the process of sol-to-gel transition.

4. Rheological properties of spherulitic domains network and interconnected fibers network of GP-1/PG system

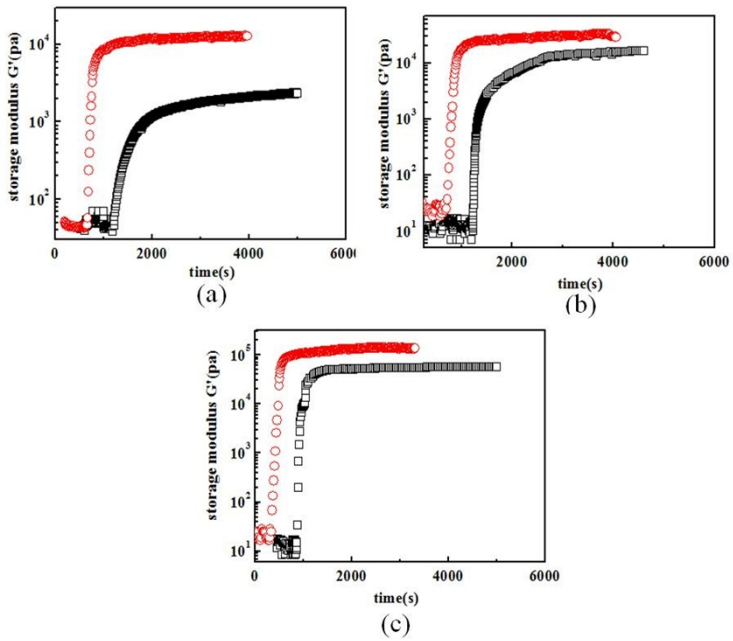

Fig. S5 Evolution of storage modulus acquired during the gelation process of GP-1/PG system at 50°C: (a) 3wt %; (b) 4wt %; (c) 5wt %.□: spherulitic domains network and ○: interconnected fibers network

5. Kinetic analysis of spherulitic domains network and interconnected fibers network of GP-1/ISA system

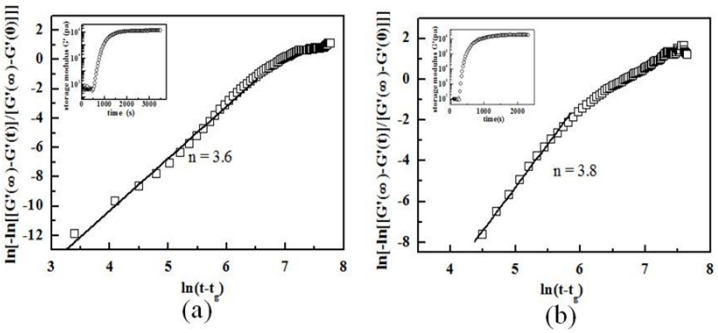

Fig. S6 The Avrami plots of dynamic rheological data according to eqn (5) for the formations of the interconnected fiber network from GP-1/ISA system at 15℃: (a) 5 wt %; (b) 6 wt %. Inset: Evolution of storage modulus in the process of sol-to-gel transition.