

Supporting Information

Synergistic self-assembly of rod-like monomers in blue phase liquid crystal for tunable optical properties

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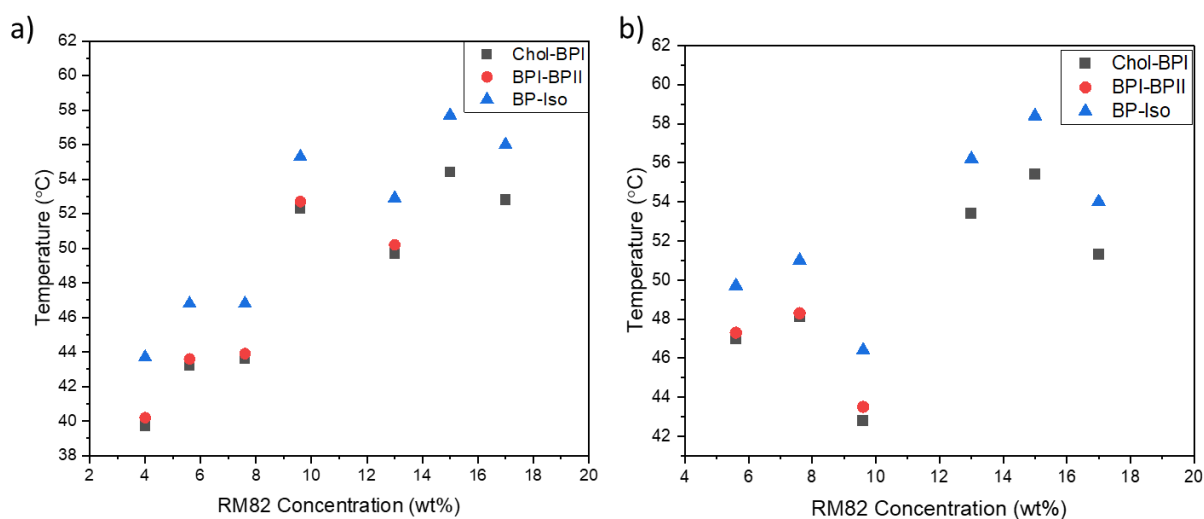


Figure S1. Phase transition temperature of BP/RM82 mixtures in a) Hybrid Confinement, b) Directed self-assembly of BPLCs.

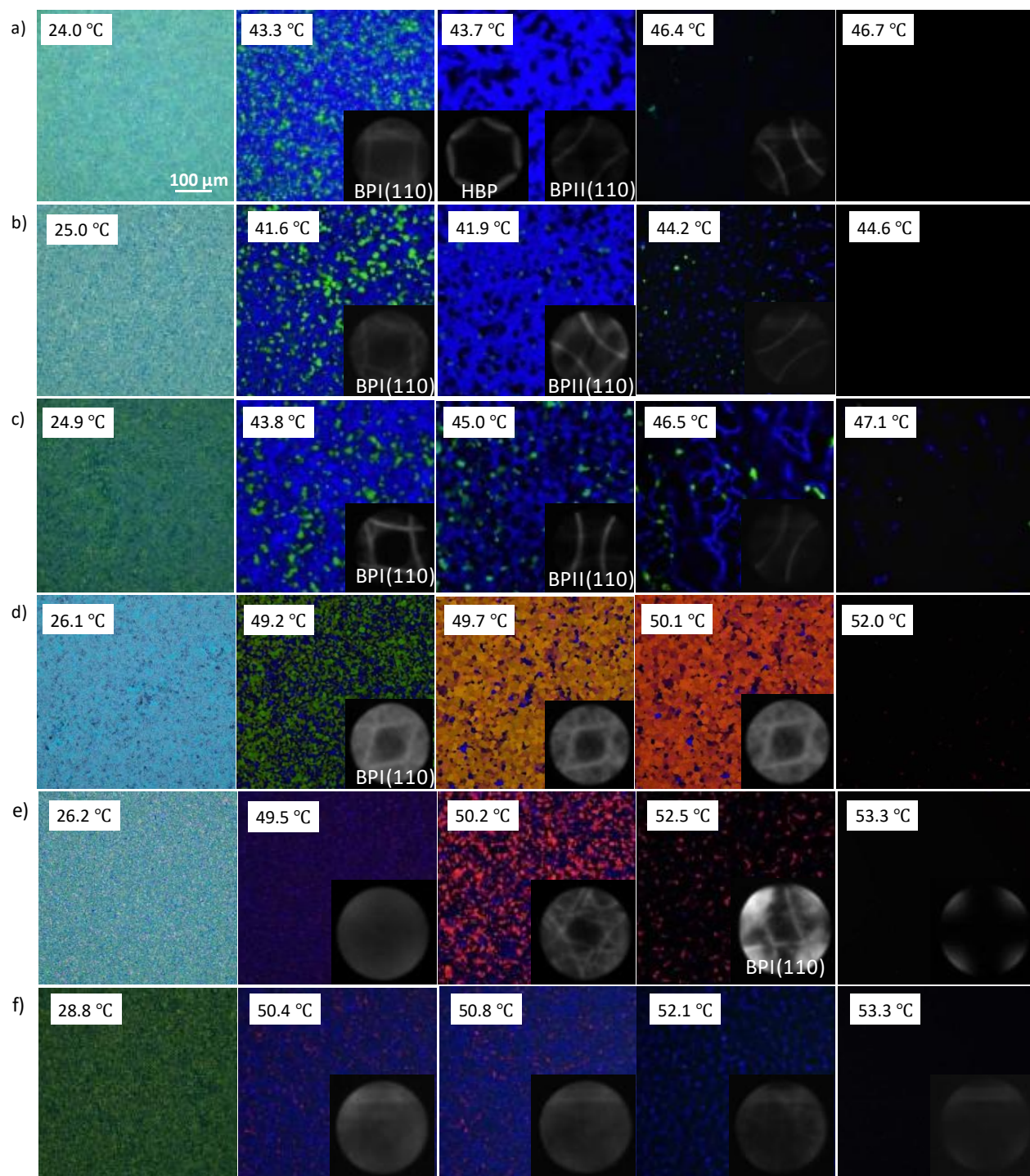


Figure S2. Hybrid confinement with different RM257 concentration in BP premixture: a) 4.0 wt%, b) 5.6 wt% c) 7.6 wt%, d) 9.6 wt%, e) 13.0 wt%, and f) 15.0 wt%. Scale bar: 100 μm .

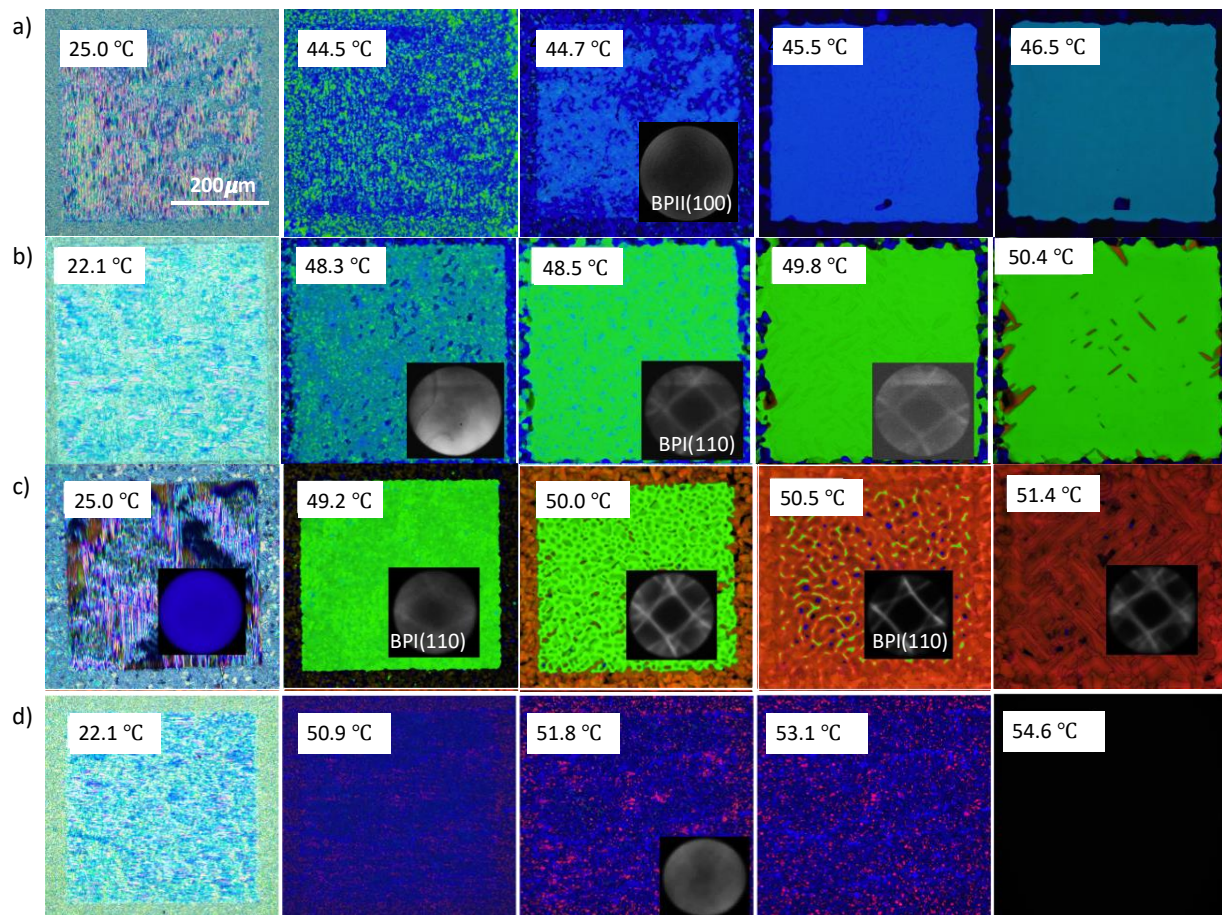


Figure S3. POM images of RM257 on chemically patterned substrate: a) 5.6 wt%, b) 7.6 wt%, c) 9.6 wt%, and d) 13.0 wt%. Scale bar: 200 μm.

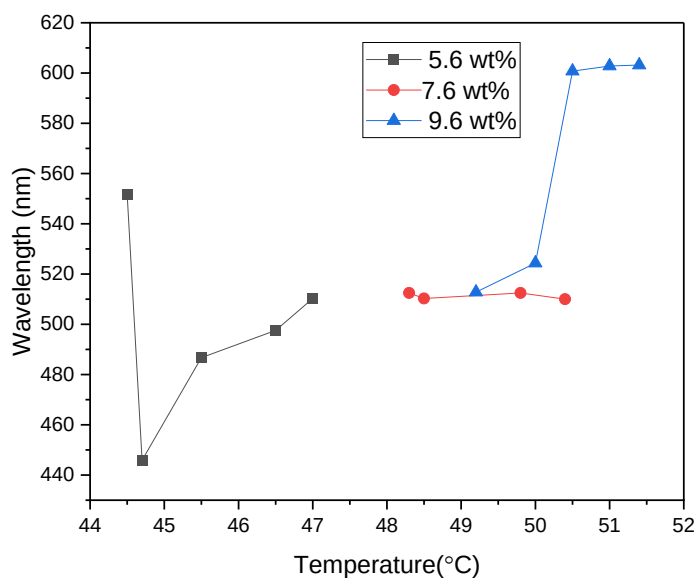


Figure S4. The correlation between wavelength and intensity for BP/RM257 mixtures (DSA) as a function of temperature.

Table S1. Variation of lattice parameters as a function of temperature for RM257 system (DSA).

RM257 (wt%)	Lattice Orientation	Temperature (°C)	Lattice size (nm)	Lattice Orientation	Temperature (°C)	Lattice size (nm)	Lattice Orientation	Temperature (°C)	Lattice size (nm)	Lattice Orientation	Temperature (°C)	Lattice size (nm)
5.6	BPI(110)	44.5	260	BPII(100)	44.7	149	BPII(100)	45.5	162	BPII(100)	46.5	166
7.6	BPI(110)	48.3	242	BPI&II(110)	48.5	241	BPI(110)	49.8	241	BPI(110)	50.4	207
9.6	BPI(110)	49.2	242	BPI&II(110)	50.0	247	BPI(110)	50.5	284	BPI & II(110)	51.4	284

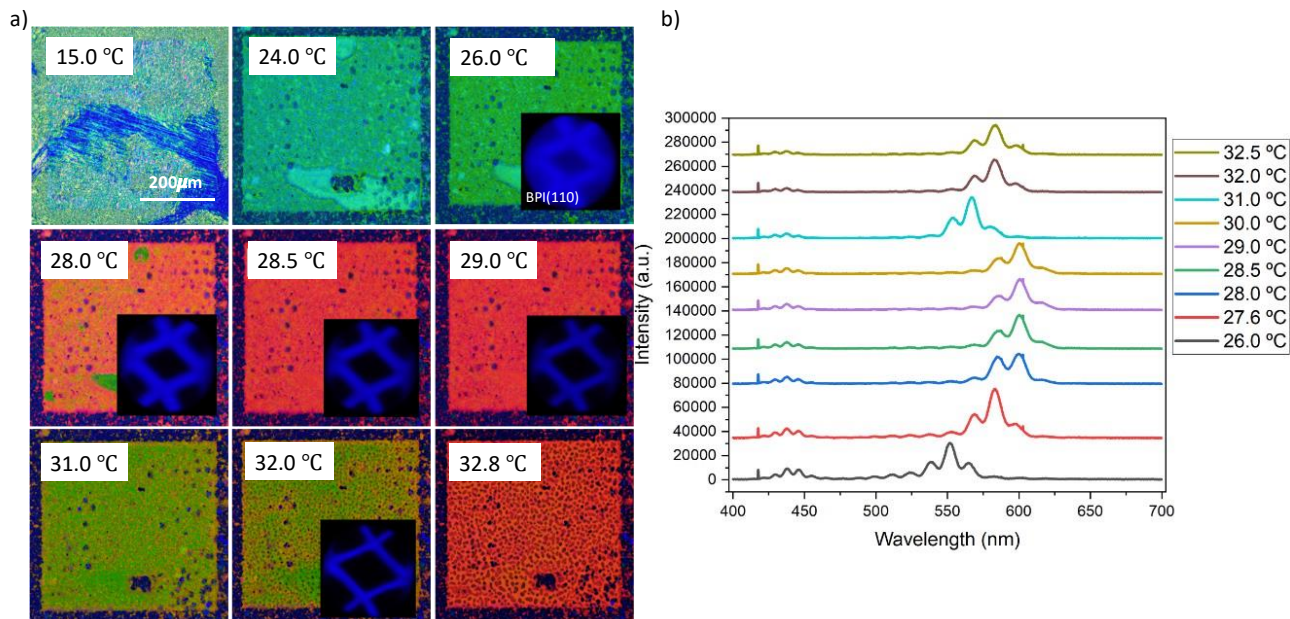


Figure S5. Polymer stabilization of BPLC: a) POM images of sample before and after polymerization on chemically patterned substrate. Scale bar: 200 μm. b) The correlation between wavelength and intensity of RM257/TMPTA/Irg651: 9.3/2.7/0.38 wt% as a function of temperature.

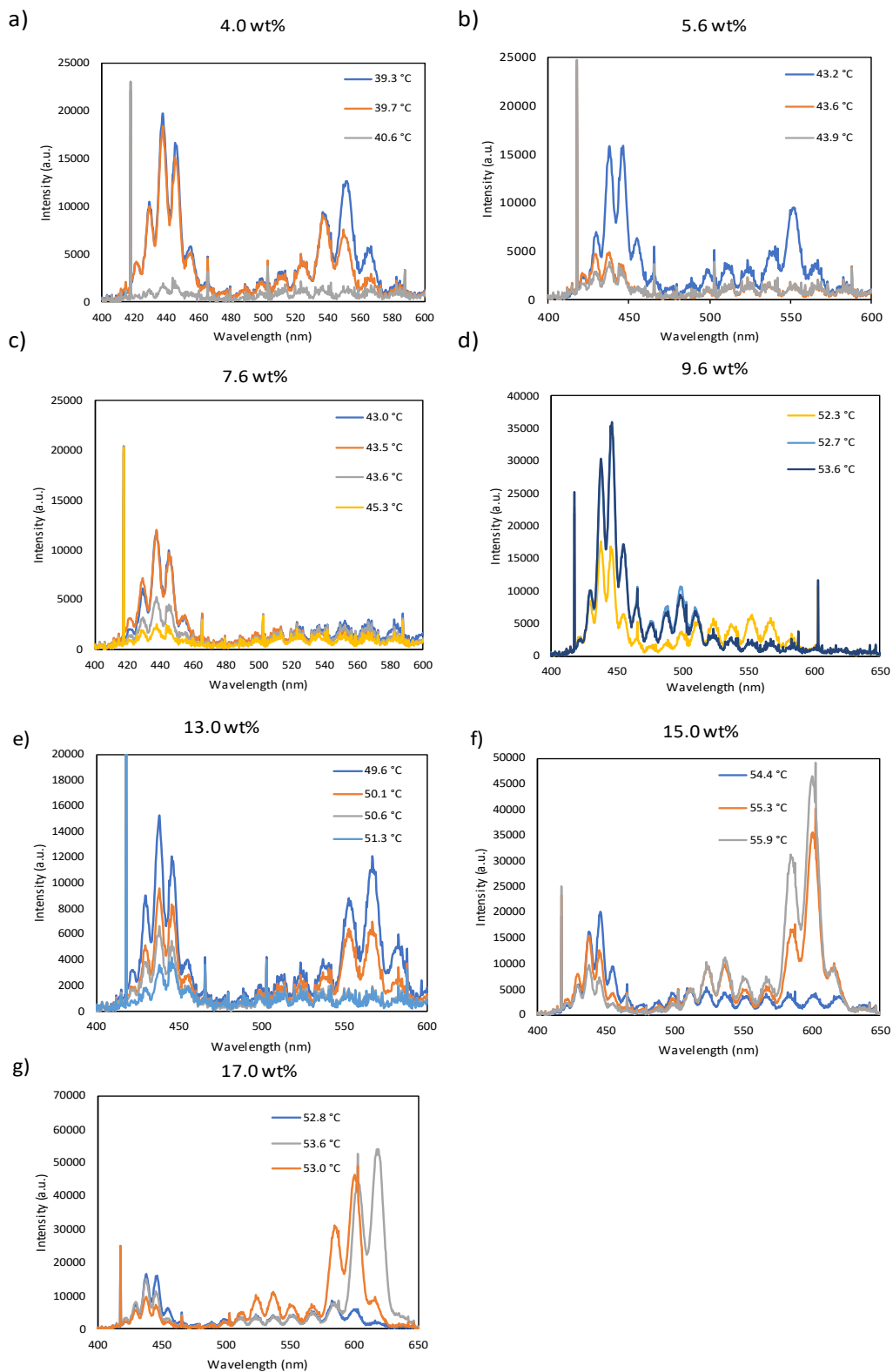


Figure S6. Intensity vs. Wavelength spectra for BP/RM82 systems (Hybrid confinement) as a function of temperature. a) 4.0 wt%, b) 5.6 wt%, c) 7.6 wt%, d) 9.6 wt%, e) 13.0 wt%, f) 15.0 wt%, g) 17.0 wt%.

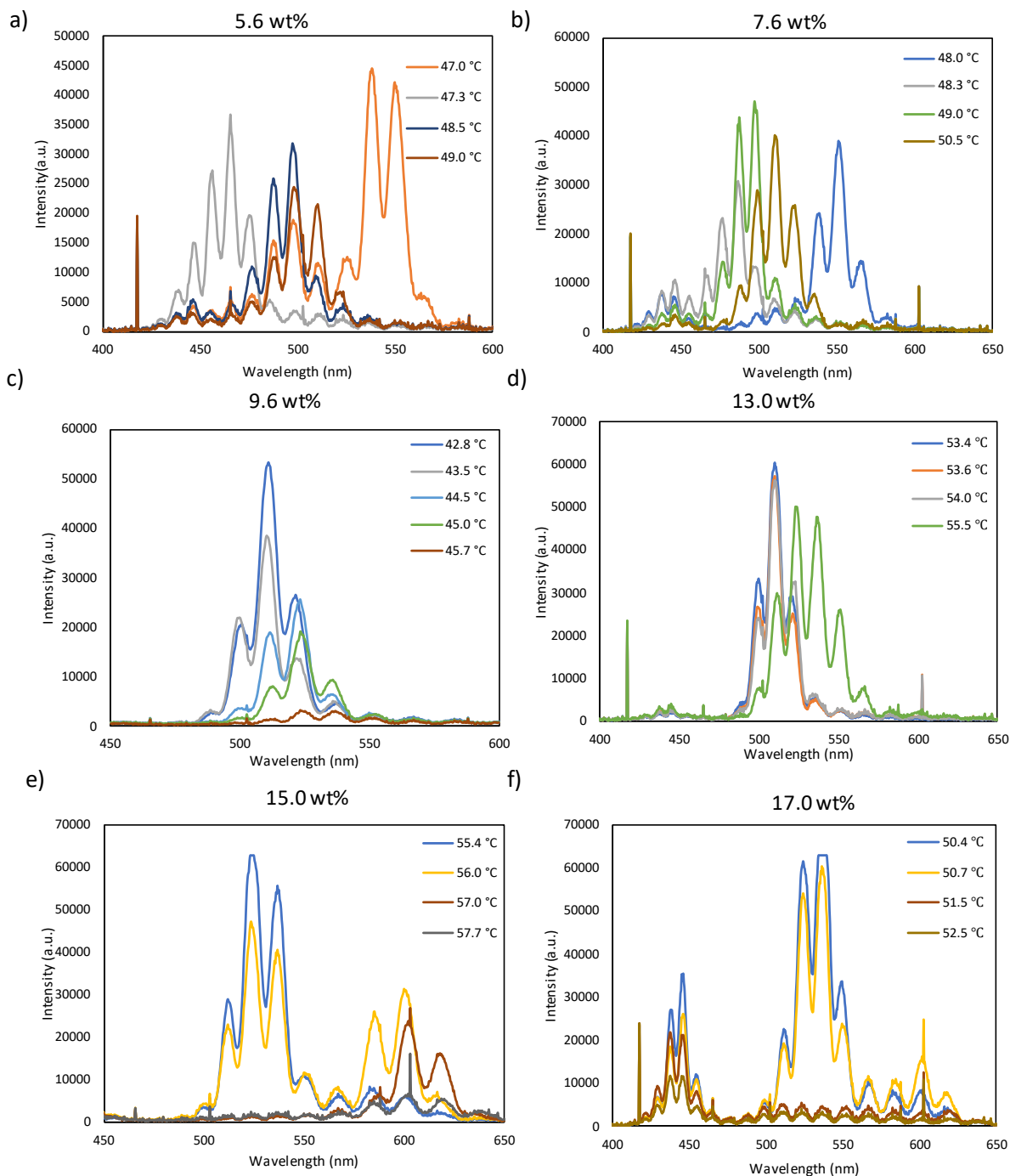


Figure S7. Intensity vs. Wavelength spectra for BP/RM82 systems (DSA) as a function of temperature. a) 5.6 wt%, b) 7.6 wt%, c) 9.6 wt%, d) 13.0 wt%, e) 15.0 wt%, f) 17.0 wt%.