Supplementary Information

Temperature dependence of an amorphous organic thin film polariton laser

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This Supporting Information provides a schematic presentation of the measurement setup of angle-resolved photoluminescence, reflectivity of polariton cavity and the DBRs. Figure S3 shows a comparison between the spectrum of polariton emission at 16 K at substrate normal under pumping power $P \sim 0.9P_{th}$ (same as Fig. 3a) and the ASE peak of a bare TDAF film. Another cavity with different detuning was fabricated to study lasing dynamics, with its polariton emission spectrum at substrate normal shown in Fig. S3. However, no lasing was observed under the highest pumping power of our facility. Figure S4 shows the emission spectral at different pumping power at 16 K.

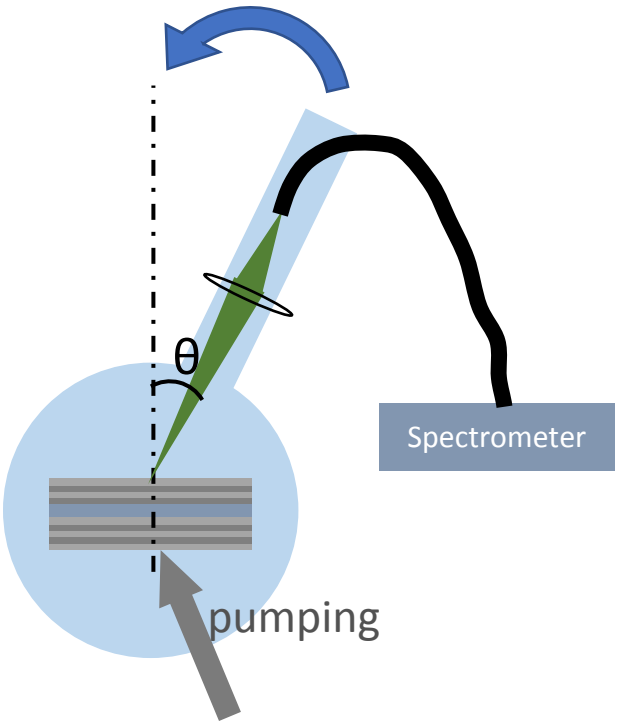

Figure S1. Schematic presentation of measurement setup.

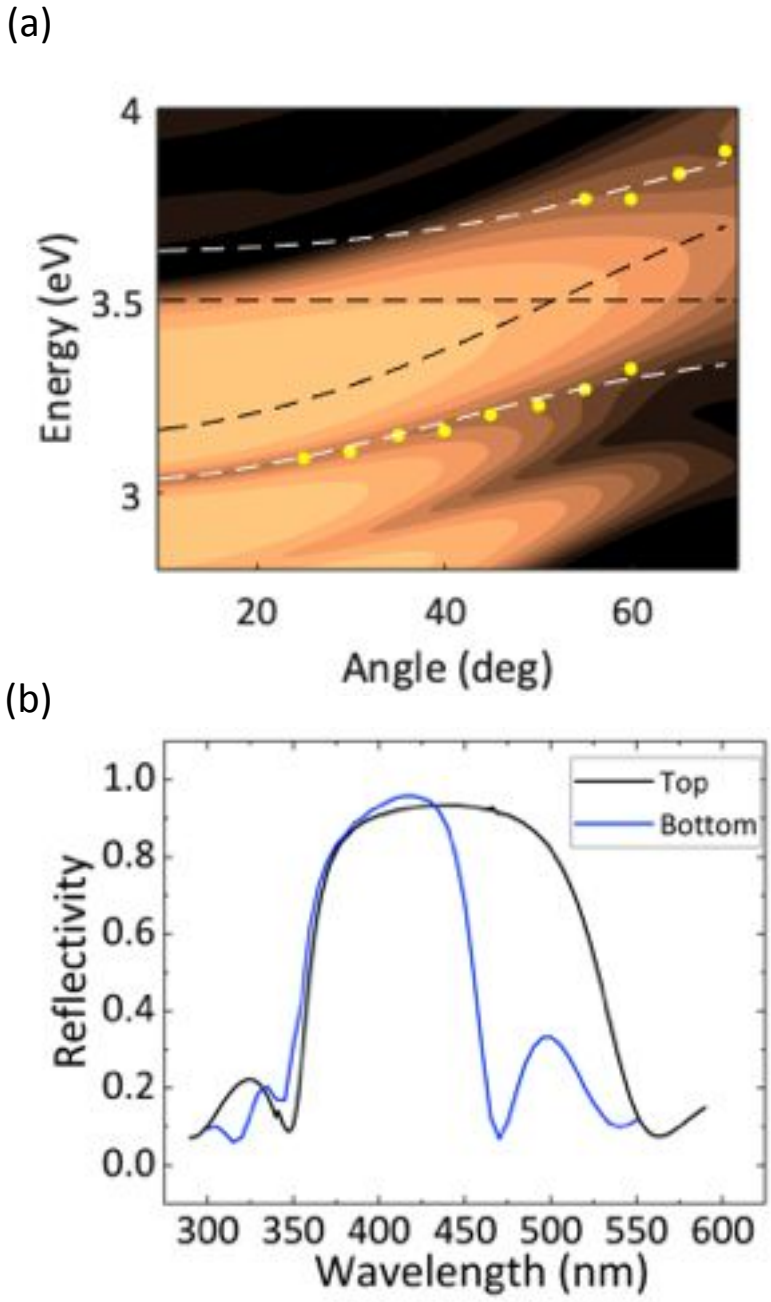

Figure S2. (a) Calculated reflectivity of the polariton microcavity using transfer matrix methods, with measured reflectivity local minimal denoted by yellow dots on the plot. (b) The measured reflectivity of the bottom and top DBRs.

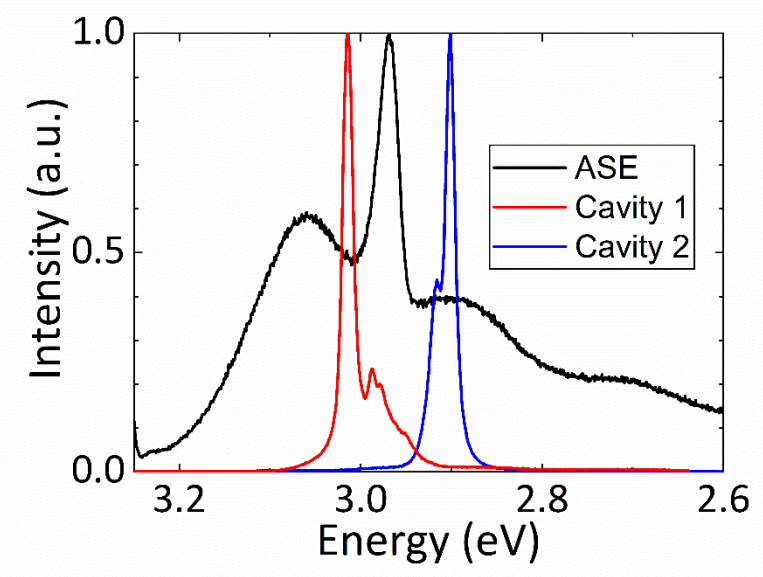

Figure S3. The polariton emission spectrum at 16 K at substrate normal under pumping power $P \sim 0.9P_{th}$ (Cavity 1) is compared with the ASE peak of bare TDAF film. A second cavity with different detuning (Cavity 2) gives a different spectrum at substrate normal. However, no lasing observed from Cavity 2 at any temperature.

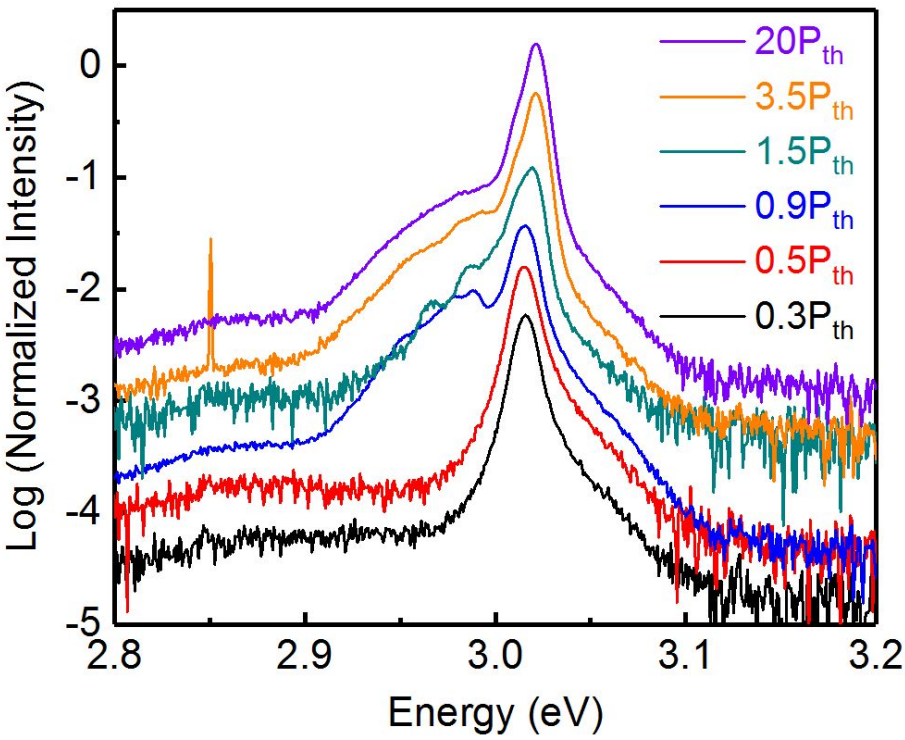

Figure S4. The spectrum of polariton emission (substrate normal at 16 K) at different pumping power.