Supplementary Materials for

d-wave Fermi Surface Instability in the Nematic Phase of Two Monolayer FeSe/$SrTiO_3$

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This PDF file includes:

Figures S1 to S2

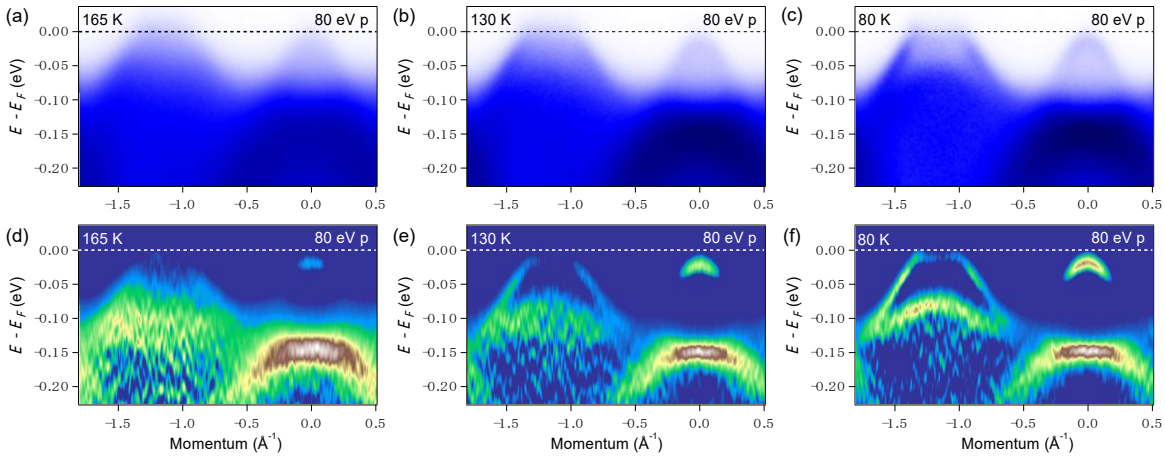

Figure S1. Temperature dependence of nematic band separation in 2 ML FeSe/STO. a), d) Electronic structure along Γ - M direction detected by 80 eV *p*-polarized photons and the corresponding second derivative spectrum. The data is measured at 165 K. b), e) and c), f) Same as (a),(d) but measured at 130 K and 80 K, respectively. As the temperature decreases, the nematic band separation at the M point increases. This behavior is consistent with the results observed in bulk materials, affirming the existence of the nematic order in 2 ML FeSe/STO.

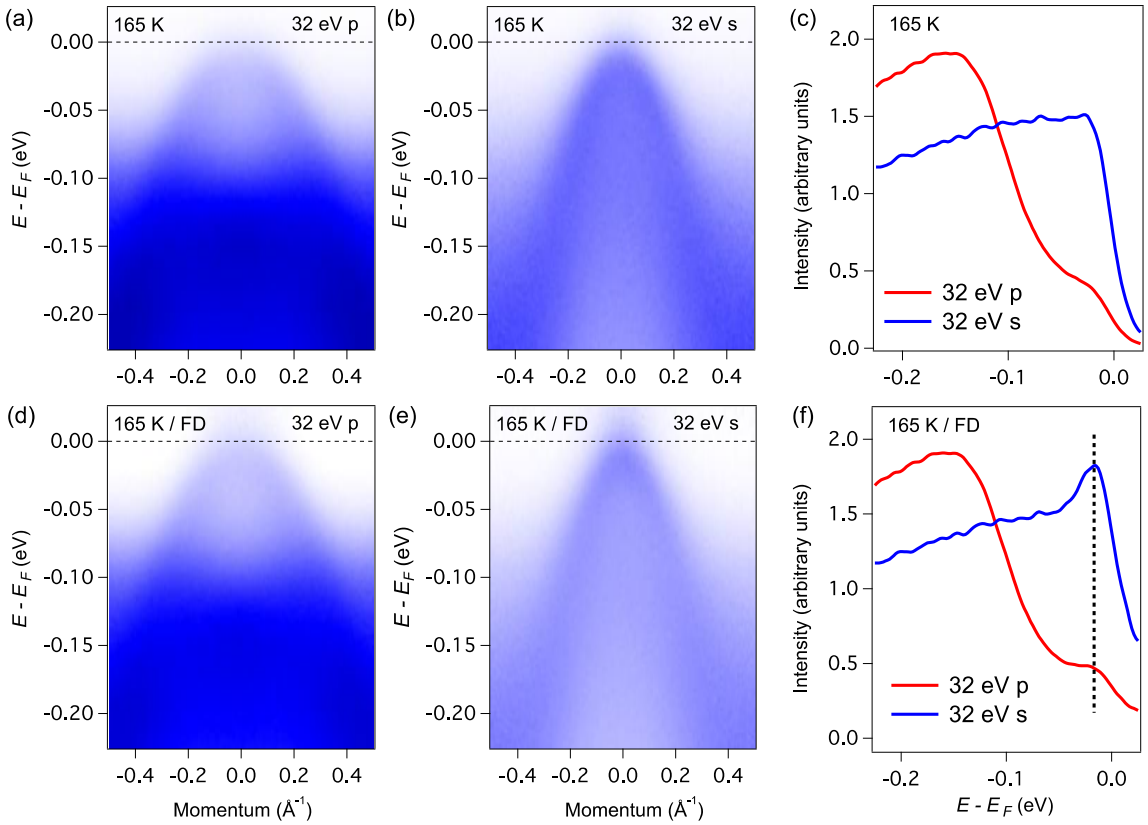

Figure S2. *Γ* point d_{xz}/d_{yz} degeneracy at high temperature in 2 ML FeSe/STO. a), b) Band structure along Γ – M direction measured at 165 K by 32 eV *p*- and *s*- polarized photons, respectively. c) Comparison of energy distribution curve (EDC) at the Γ point measured by 32 eV *p*- and *s*-polarized photons. d), e), same as (a), (b), but divided by the Fermi–Dirac distribution function convoluted by the resolution function to highlight the states near and above the Fermi energy. f) Comparison of energy distribution curve (EDC) at the Γ point measured by 32 eV *p*- and *s*-polarized photons. The black dashed lines indicate the position of the α and β band tops.