SUPPORTING INFORMATION

Understanding and Controlling the Depth Sensitivity of Infrared Imaging and Nanospectroscopy for Bilayer Polymeric Thin Films

Nathaniel Prine, Camille Cardinal, Xiaodan Gu*

School of Polymer Science and Engineering, Center for Optoelectronic Materials and Devices, The University of Southern Mississippi, Hattiesburg, MS 39406, USA.

Corresponding author

Correspondence to: Xiaodan Gu. E-mail: xiaodan.gu@usm.edu
Figure S1. Complete sample preparation process for bilayer samples.

Figure S2. Bulk FTIR spectra of (a) PS and (b) PLA.
**Figure S3.** (a) Difference in AFM-IR signal acquired at 1765 cm$^{-1}$ using both contact mode and tapping mode. (b) AFM-IR signal intensity at 1765 cm$^{-1}$ as a function of laser power used.

**Figure S4.** (a) AFM-IR spectra acquired on a PS/PLA bilayer sample using a 20, 40, and 60 ns pulse width. (b) The AFM-IR Signal ratio of the PLA/PS signal as a function of laser pulse width (acquired in tapping mode).