

Supplementary Information

Enhanced Optical Sensing in Mixed Porous-Solid Photonic Stacks

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Reflection Intensity Difference Spectral Analysis

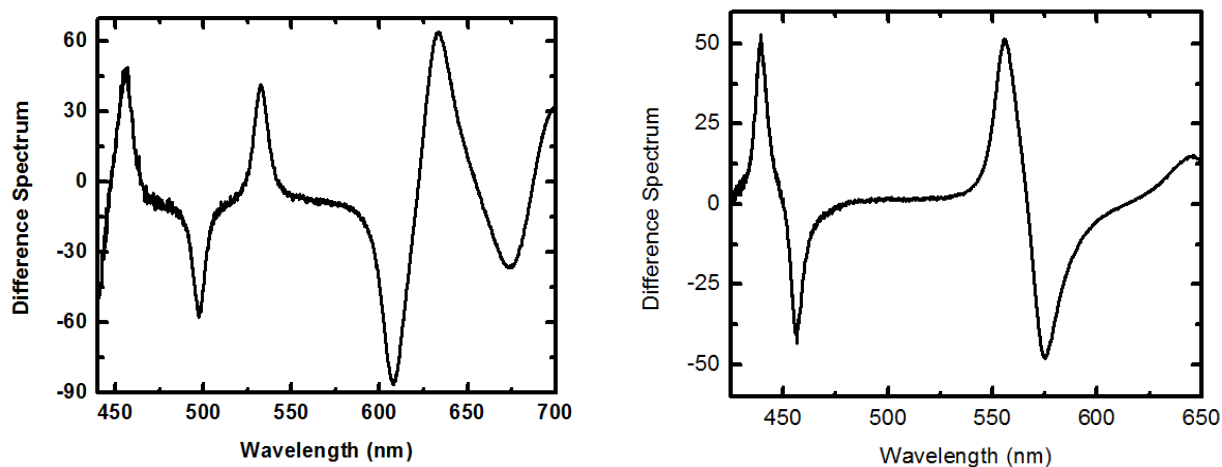


Figure S1. Reflection intensity difference spectra for (left) a dry film and a film completely infiltrated with ethanol (corresponding to Figure 4b), and (right) a film in controlled RH environments with a n difference of 0.13 (corresponding to Fig. 4c)

Sample Homogeneity

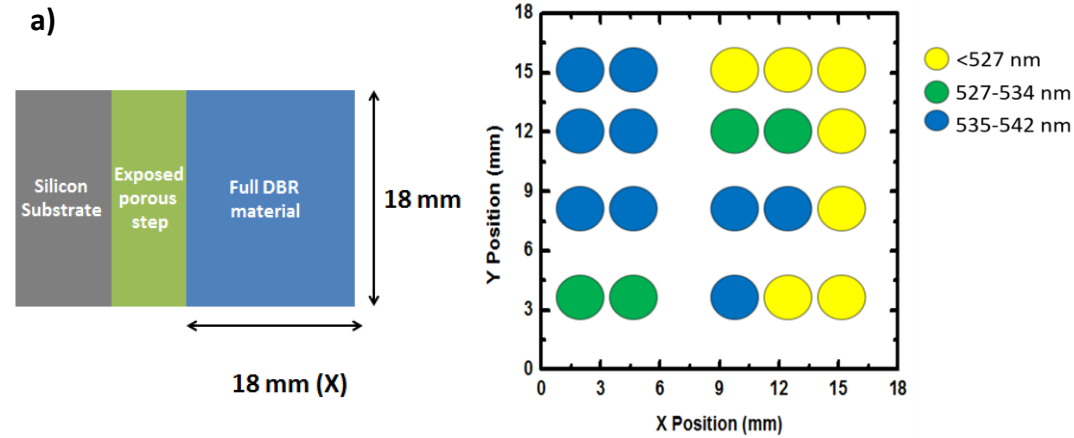


Figure S2. a) 2D schematic of DBR structure. b) Homogeneity map of wavelength position (in nm) of the optical cavity mode as a function of film position. Reflection measurements were obtained with a white light beam of 2.5 mm in diameter.

Micro-spectroscopy Set-up

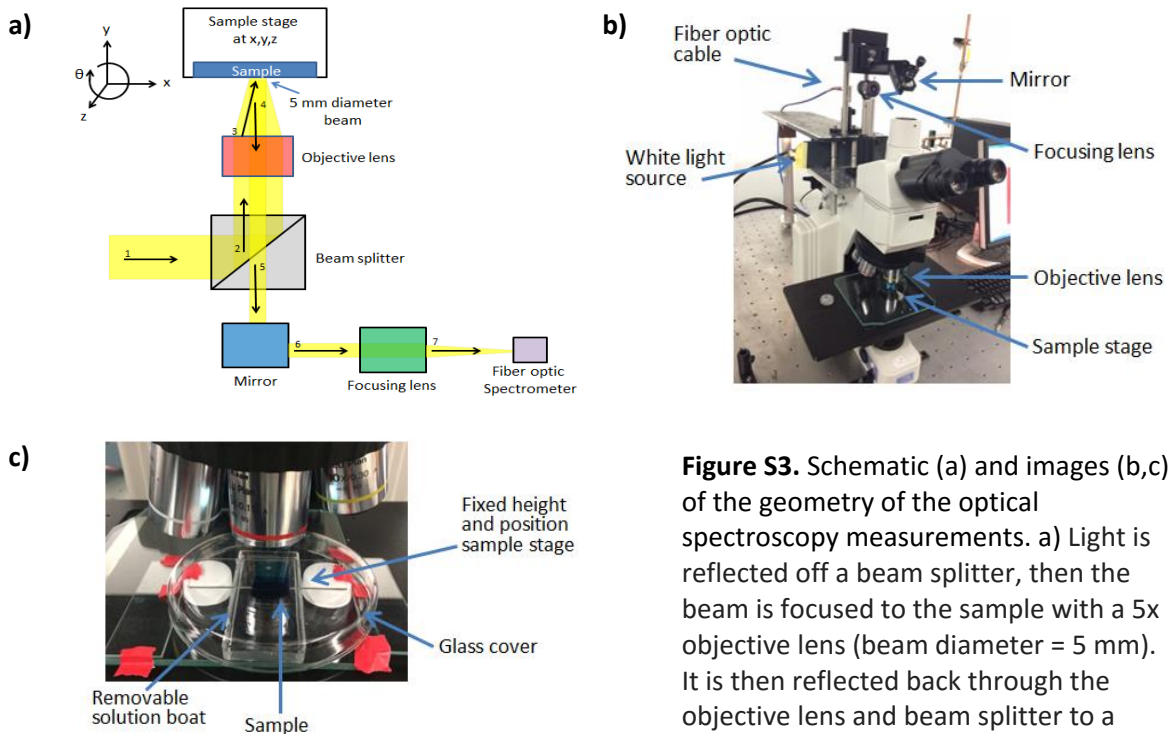


Figure S3. Schematic (a) and images (b,c) of the geometry of the optical spectroscopy measurements. a) Light is reflected off a beam splitter, then the beam is focused to the sample with a 5x objective lens (beam diameter = 5 mm). It is then reflected back through the objective lens and beam splitter to a mirror. The mirror reflects the light to a focusing lens and into the fiber optic spectrometer. b) Image of optical set-up. c) For controlled humidity measurements, a fixed-position stage with a removable glass cover and solution boat was fashioned. This allowed the sample position to remain constant between measurements while the saturated salt solution could be switched out. The glass cover provided a contained environment for the measurement.

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