Vapor-Phase Synthesis and Surface Area Analysis of ZIF-8 Metal Organic Framework (MOF) on Fibrous Substrates via Atomic Layer Deposition

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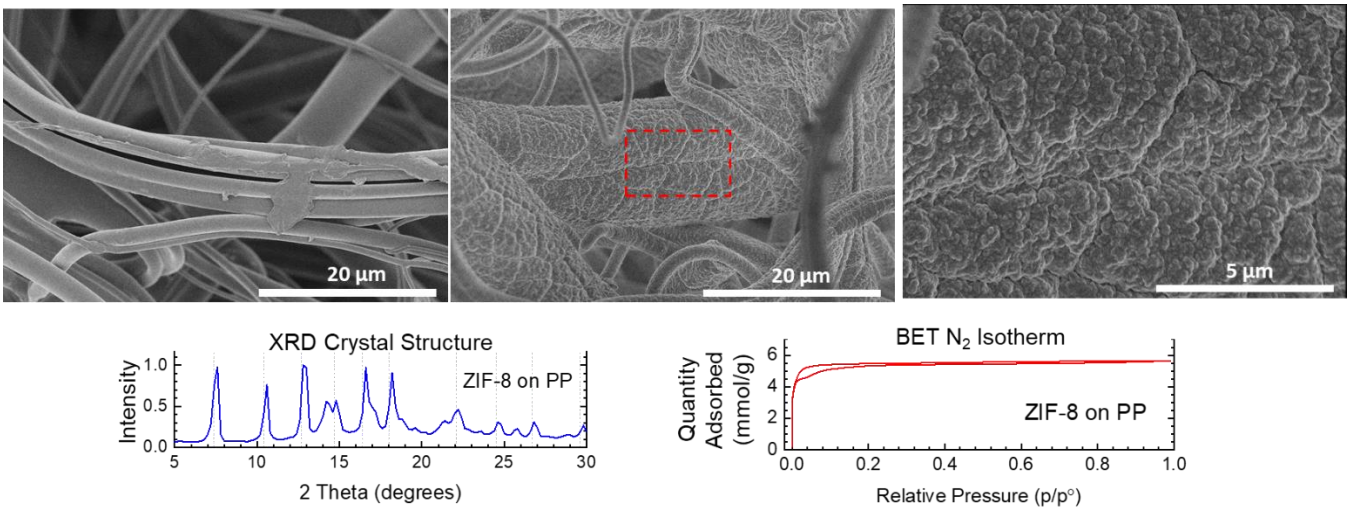

Figure 1: Top row: SEM images of uncoated, nonwoven polypropylene fiber mats (left), ZIF-8 crystals on ZnO-coated polypropylene formed at 135 °C for 6 hours, resulting in crystal sizes of 100-200 nm (middle), and enlargement on ZIF-8 crystal structure (right). Bottom row: XRD spectra of ZIF-8 synthesized at 120 °C for 25 hours with characteristic peaks highlighted (left), and nitrogen adsorption isotherm from BET surface analysis for ZIF-8 on ZnO-coated polypropylene formed at 120 °C for 24 hours, showing a surface area of 380 m^2/g (fiber + MOF) (right).