

Supporting Information: ALD based Nanostructured Zinc Oxide coated Antiviral Silk Fabric

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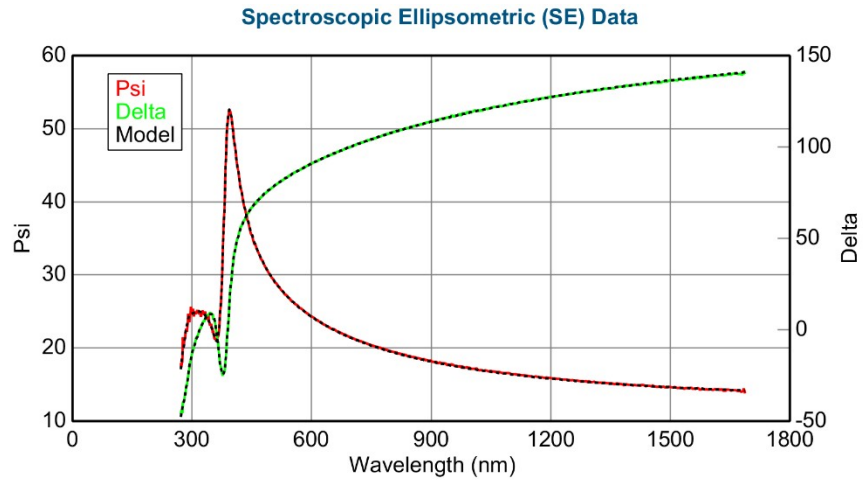
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S1. Ellipsometry

Sample: POST 200 cy ZnO at 100C on Si-native

Fit Results MSE = 4.043 ZnO Thickness = 45.30 ± 0.006 nm	Optical Model - Layer # 2 = ZnO (GenOsc) Thickness # 2 = 45.30 nm (fit) Show Dialog - e1 Components Einf = 1.826 UV Pole Amp. = 40.2335 UV Pole En. = 6.750 IR Pole Amp. = 0.2271 - e2 Components Oscillator Menu: Add Delete Delete All Sort Fit Menu: All None Amp. Br. En. 1: Type = PSemi-M0 Amp1 = 4.154 Br1 = 0.0897 Eo1 = 3.324 WR1 = 1.7753 PR1 = 0.938 AR1 = 0.437 O2R1 = 0.645 2: Type = Gaussian Amp2 = 1.580523 Br2 = 1.8737 En2 = 4.961 3: Type = Gaussian Amp3 = 1.900752 Br3 = 4.3791E-05 En3 = 3.374 Layer # 1 = INTR_JAW Thickness # 1 = 1.57 nm Substrate = SI_JAW
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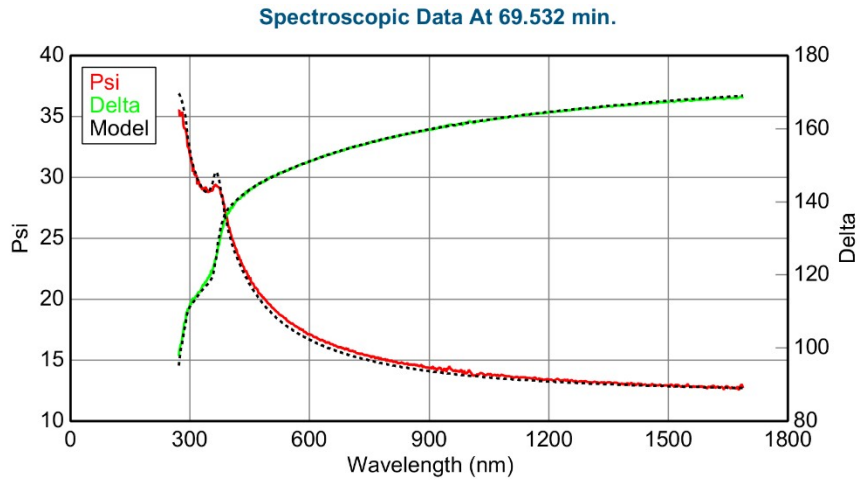
Experimental and Model Generated Data Fits



Sample: in situ 50 cy ZnO at 100C on Si-native

Fit Results MSE = 9.102 Thickness # 2 = 8.34 ± 0.025 nm ZnO Thickness = 8.34 ± 0.025 nm	Optical Model - Layer # 2 = ZnO (GenOsc) Thickness # 2 = 8.34 nm (fit) Show Dialog - e1 Components Einf = 1.923 UV Pole Amp. = 39.4332 UV Pole En. = 7.999 IR Pole Amp. = 0.4196 - e2 Components Oscillator Menu: Add Delete Delete All Sort Fit Menu: All None Amp. Br. En. 1: Type = PSemi-M0 Amp1 = 3.857 Br1 = 0.1561 Eo1 = 3.521 WR1 = 2.0746 PR1 = 0.785 AR1 = 0.331 O2R1 = -0.00040140 2: Type = Gaussian Amp2 = 2.631504 Br2 = 2.6711 En2 = 6.559 3: Type = Gaussian Amp3 = 0.388221 Br3 = 0.7921 En3 = 0.220 Layer # 1 = INTR_JAW Thickness # 1 = 1.70 nm Substrate = SI_JAW
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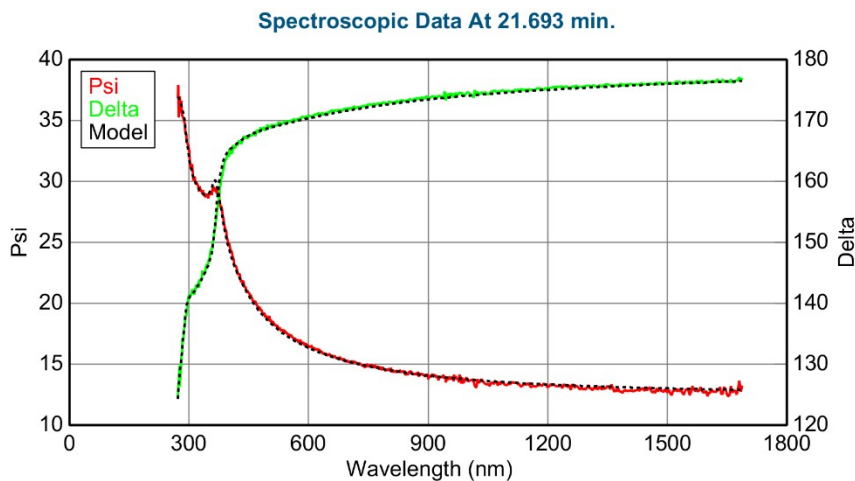
Experimental and Model Generated Data Fits



Sample: in situ 15 cy ZnO at 100C on Si-native

<p>Fit Results MSE = 5.265 Thickness # 2 = 0.01 ± 0.014 nm Angle Offset = 0.0847 ± 0.007324</p>	<p>Optical Model</p> <ul style="list-style-type: none"> - Layer # 2 = ZnO (GenOsc) Thickness # 2 = 2.42 nm (fit) <ul style="list-style-type: none"> Show Dialog - e1 Components <ul style="list-style-type: none"> Einf = 1.923 UV Pole Amp. = 39.4332 UV Pole En. = 7.999 IR Pole Amp. = 0.4196 - e2 Components <ul style="list-style-type: none"> Oscillator Menu: Add Delete Delete All Sort Fit Menu: All None Amp. Br. En. 1: Type = PSemi-M0 Amp1 = 3.857 Br1 = 0.1561 Eo1 = 3.521 WR1 = 2.0746 PR1 = 0.785 AR1 = 0.331 O2R1 = -0.00040140 2: Type = Gaussian Amp2 = 2.631504 Br2 = 2.6711 En2 = 6.559 3: Type = Gaussian Amp3 = 0.388221 Br3 = 0.7921 En3 = 0.220 Layer # 1 = NTVE_JAW Native Oxide = 1.71 nm Substrate = SI_JAW
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Experimental and Model Generated Data Fits



S2. XPS (X-ray photoelectron spectroscopy)

Sample Details	Peak Positions (eV)				Peak shift (eV)
	C-C/C-H	C-N	C-O	C=O	
Control silk	282.976	283.634	284.6	286.4	1.624
15 Cycle	283.048	283.691	284.59	286.41	1.552
50 Cycle	283.07	283.413	284.548	286.454	1.53
200 Cycle	283.17	284.077	284.9	286.519	1.43

Sample Details	Peak Positions			
	C-C/C-H	C-N	C-O	C=O
Control silk	284.6	285.258	286.224	288.024
15 Cycle	284.6	285.243	286.142	287.962
50 Cycle	284.6	284.943	286.078	287.984
200 Cycle	284.6	285.507	286.33	287.949