

SnO *via* Water-Based ALD employing Tin(II) Formamidinate: Precursor
Characterization and Process Development

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Supplementary Information

^1H and ^{13}C NMR

Bis(diisopropylformamidinato) tin(II) ($[\text{Sn}(\text{iPr}_2\text{fAMD})_2]$), **1**

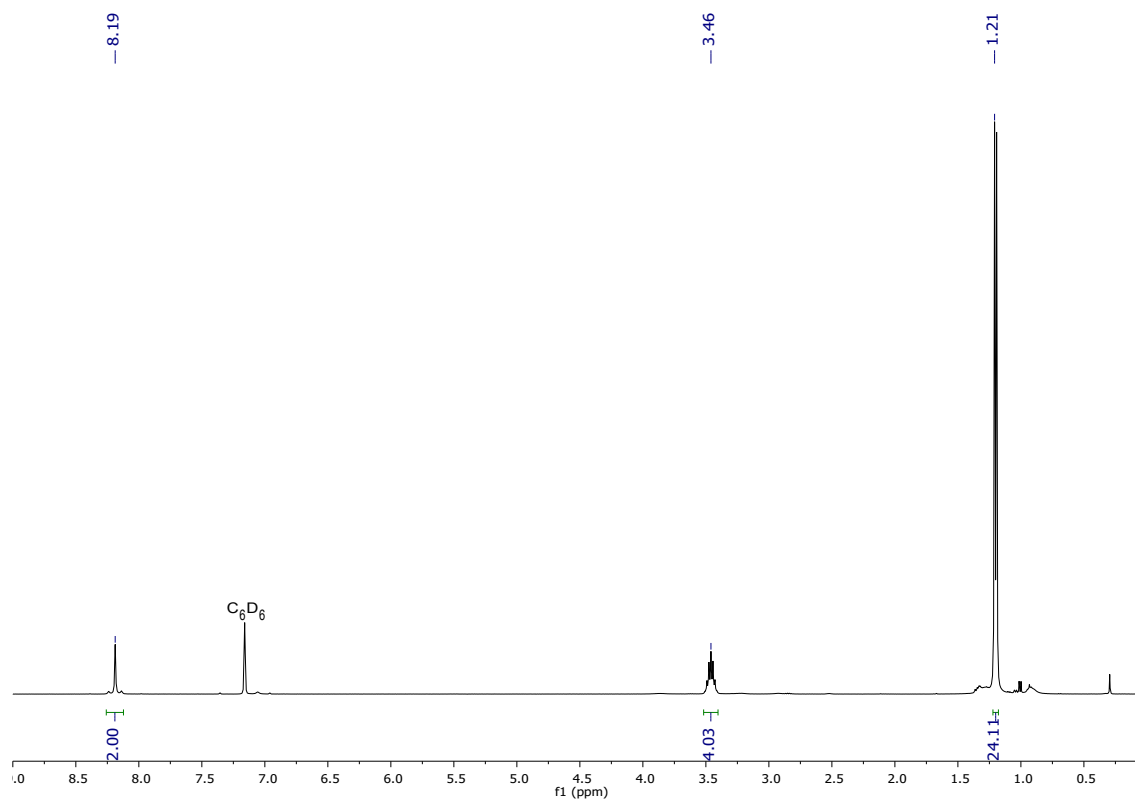


Figure S 1: ^1H NMR of compound **1**.

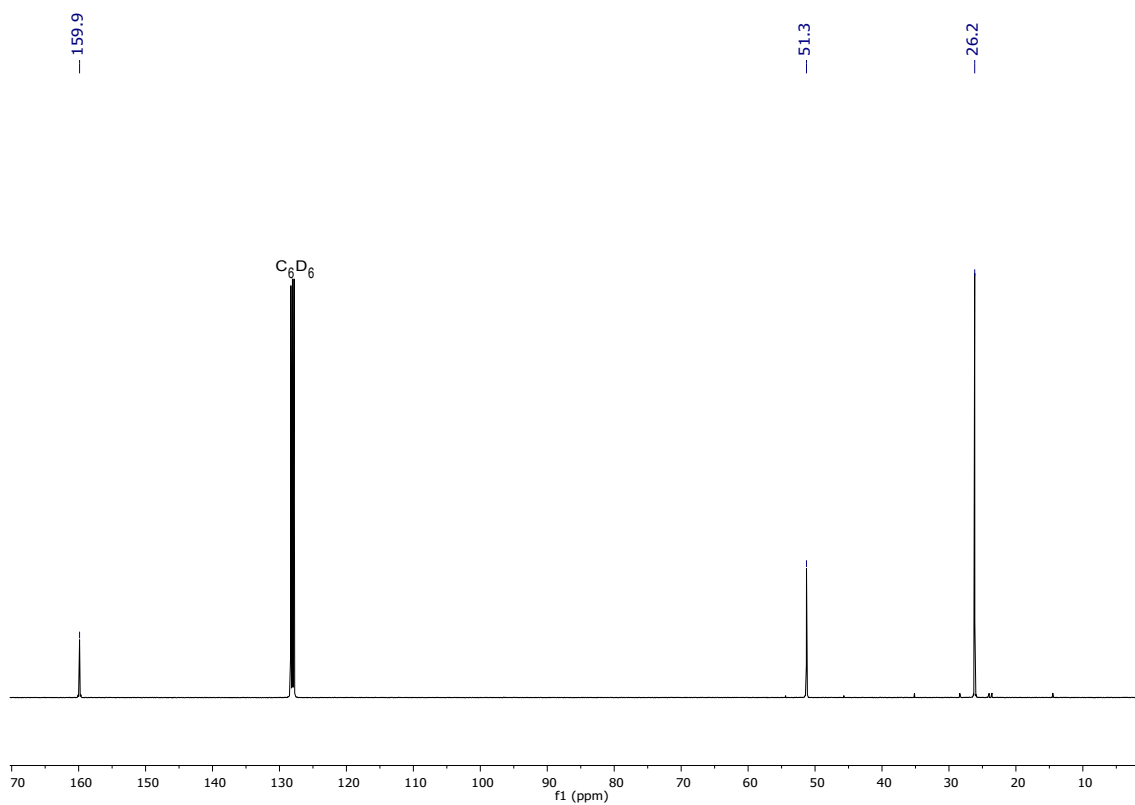


Figure S 2: ^{13}C NMR of compound **1**.

Bis(diisopropylacetamidinato) tin(II) ([Sn(iPr₂AMD)₂], 3

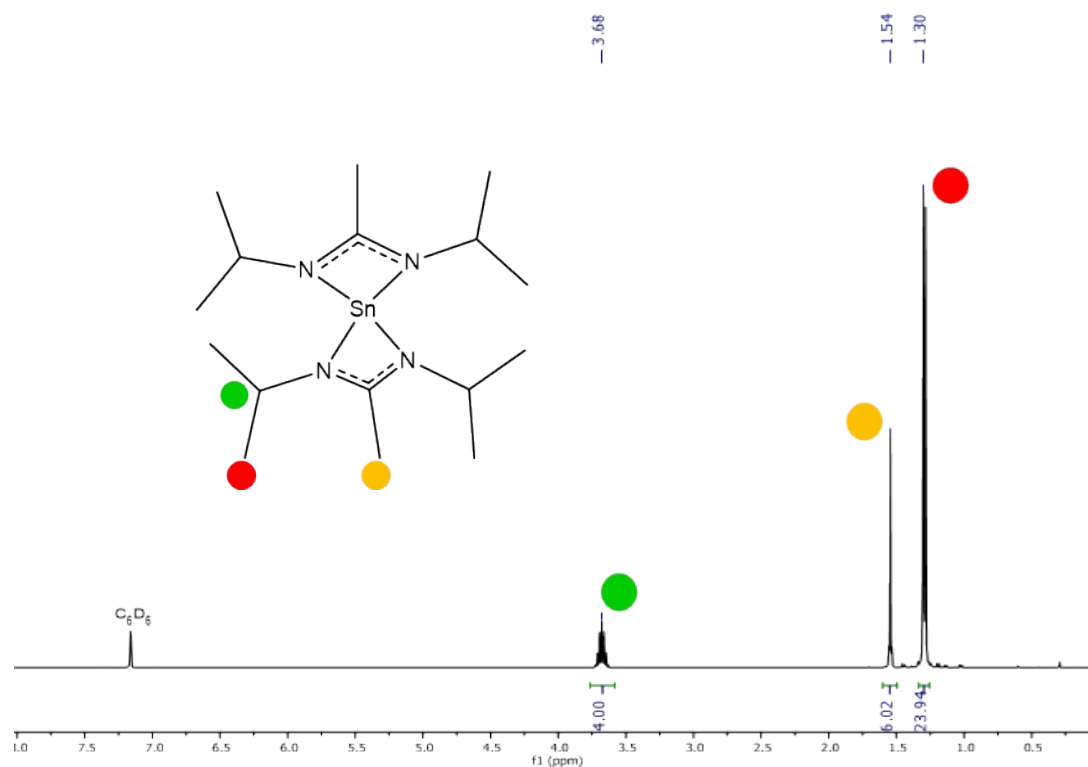


Figure S 3: ¹H NMR of compound 3.

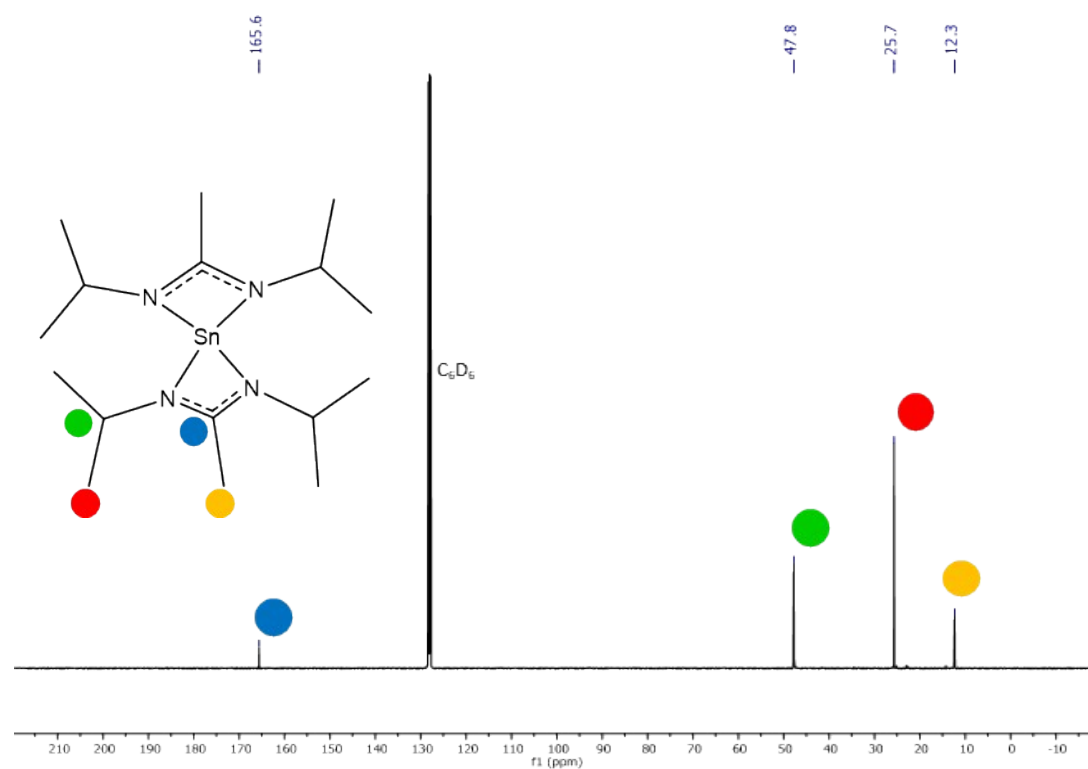


Figure S 4: ¹³C NMR of compound 3.

Bis(ethyl-*tert*-butyl-acetamidinato) tin(II) ([Sn(Et^tBuAMD)₂]), 4

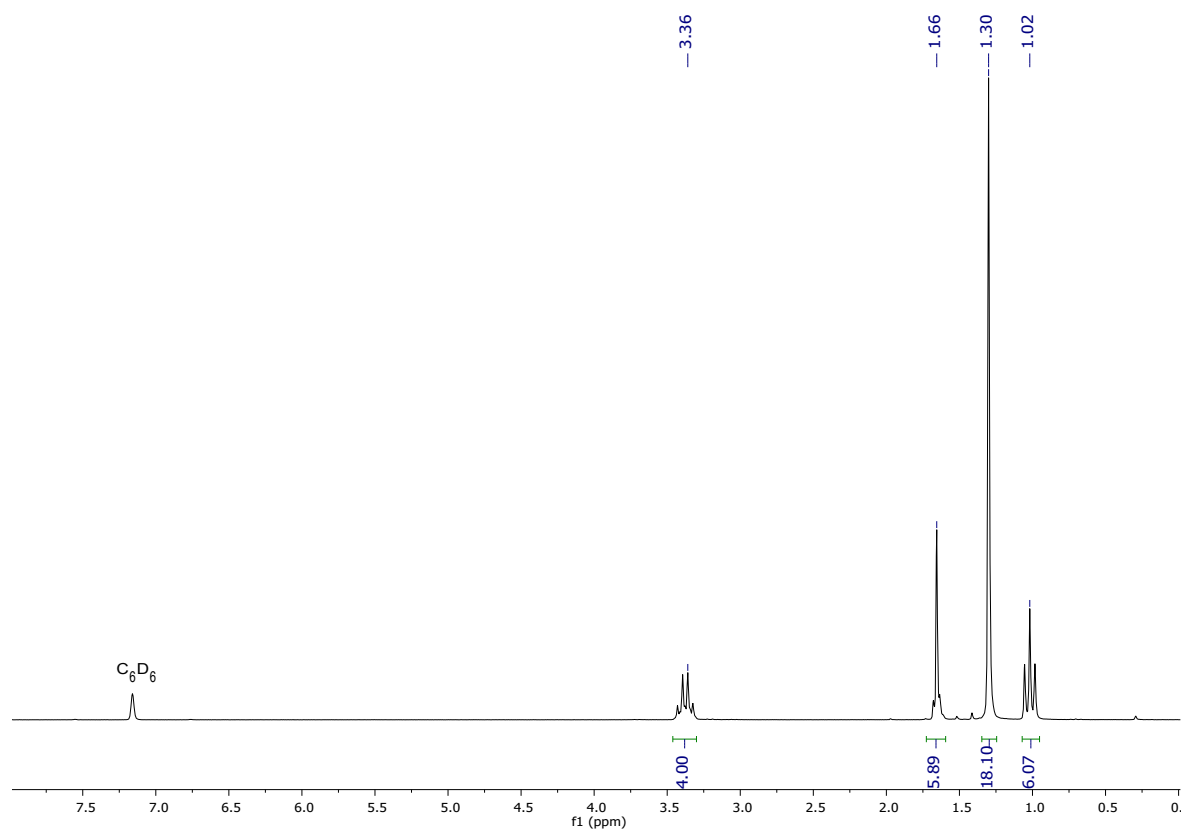


Figure S 5: ¹H NMR of compound 4.

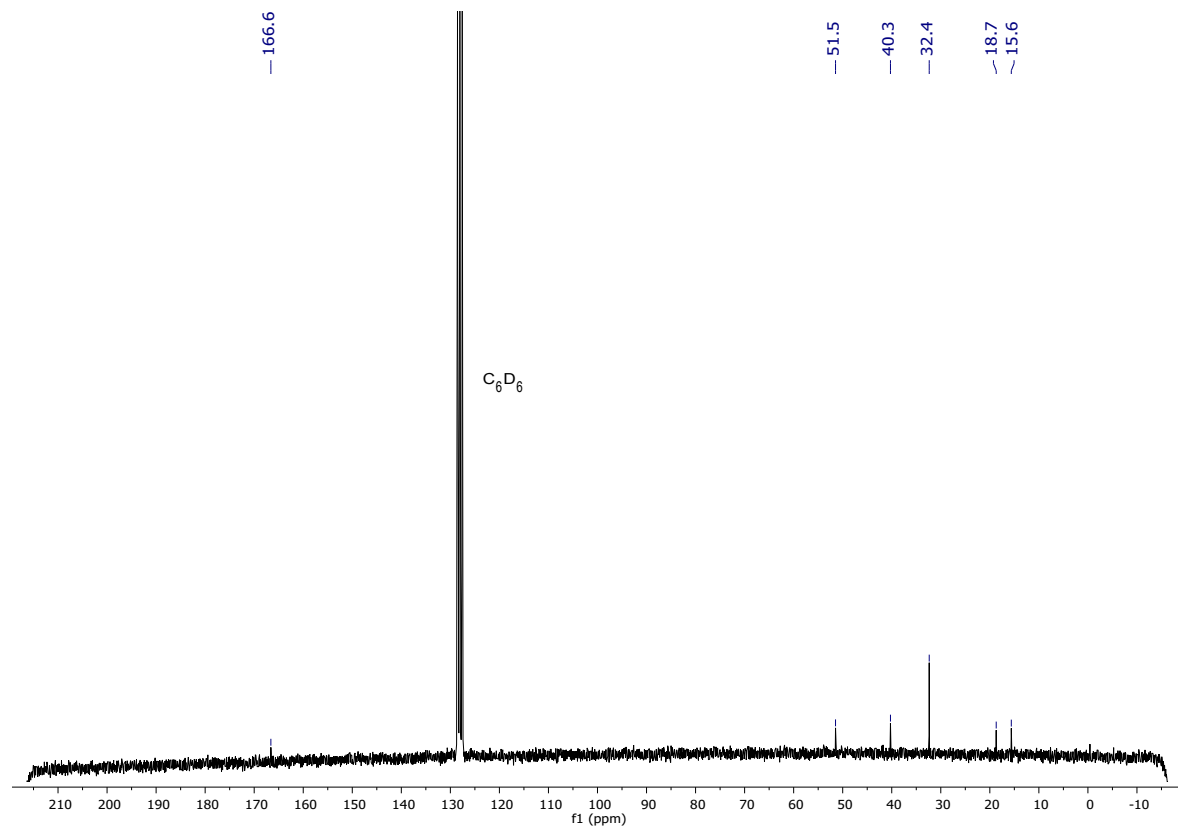


Figure S 6: ¹³C NMR of compound 4.

ALD Sequence, GI-XRD, and XPS



Figure S 7 Pulse and purge times of the ALD process schematically displayed.

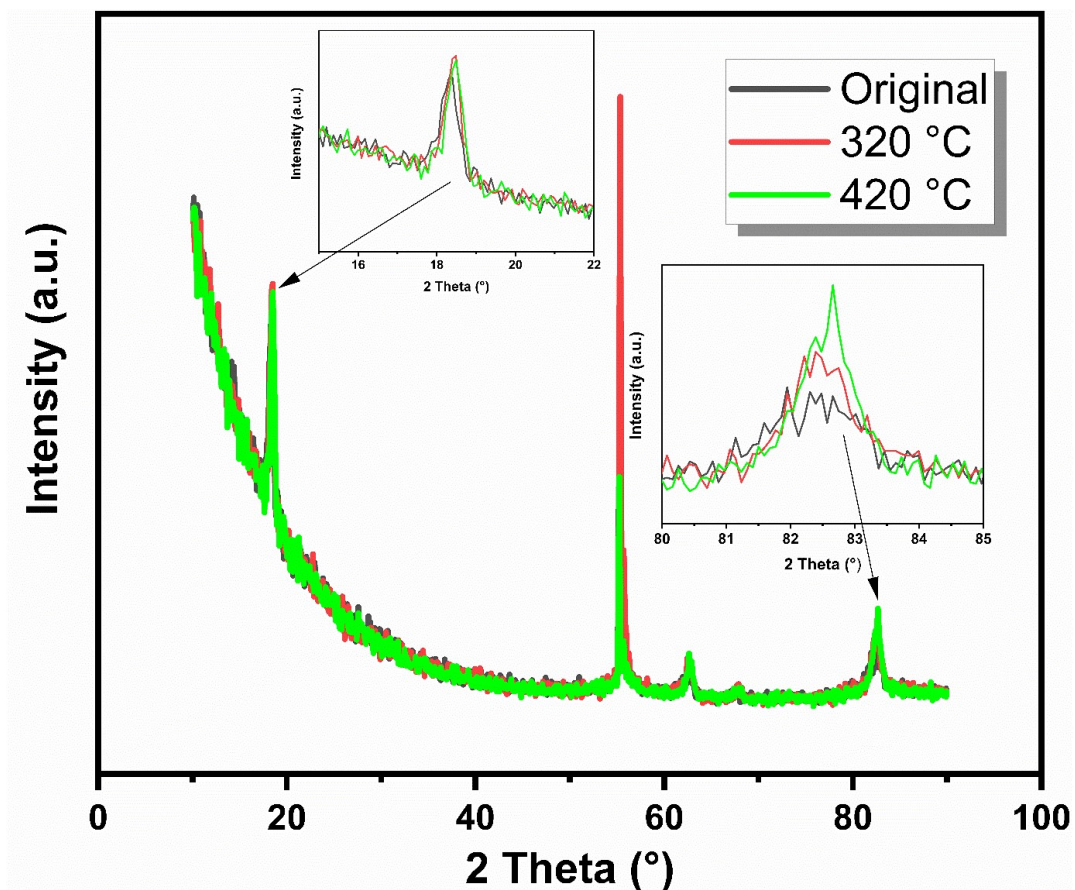


Figure S 8 GI-XRD patterns for an as deposited (at 220 °C) SnO thin film and for the same film after annealing at 320 or 420 °C. The two peaks indicated by the arrows and enlarged in the insets are the (001) and (213) reflections of the SnO phase.

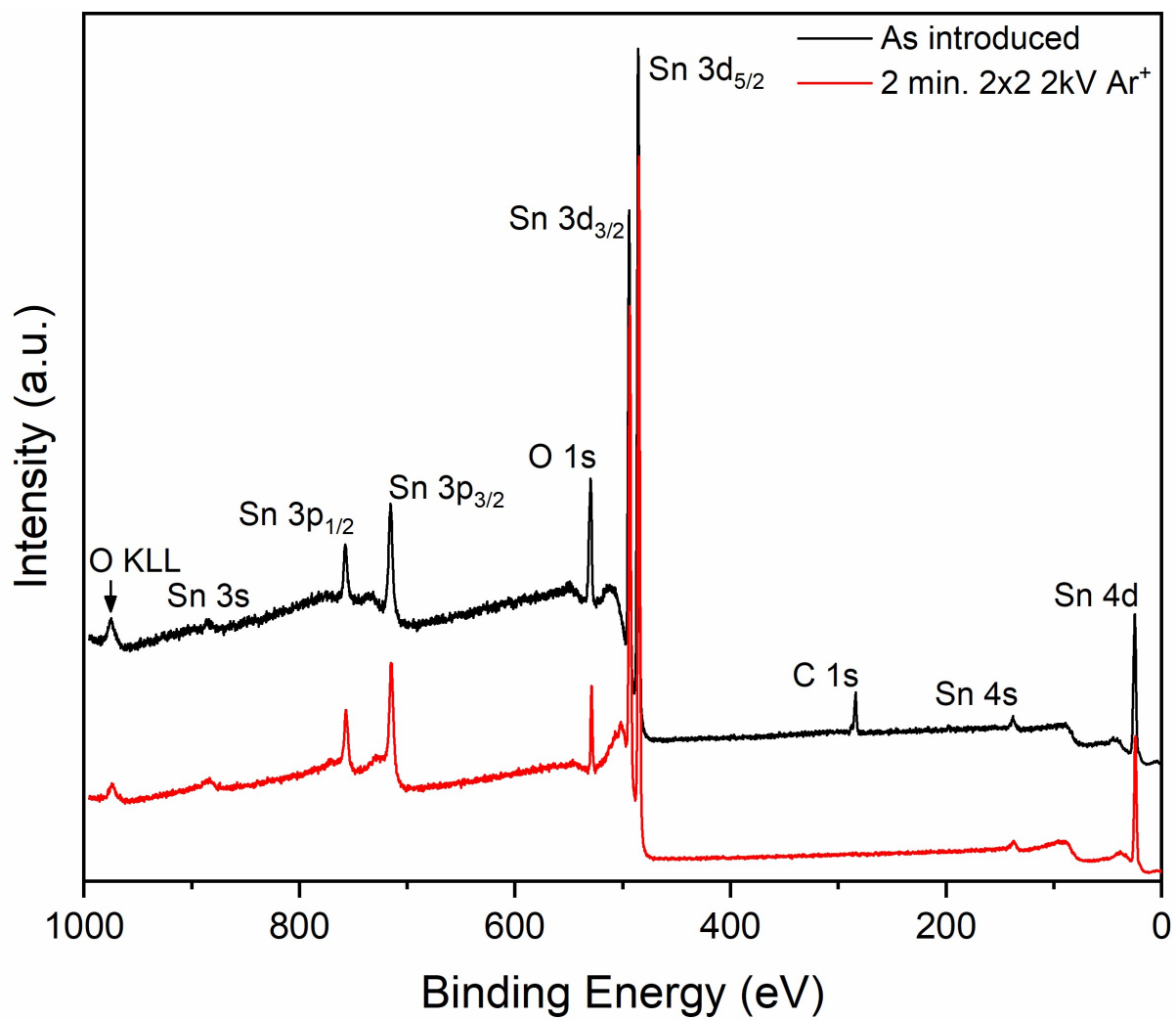


Figure S 9 XPS survey spectra of a SnO thin film deposited on Si(100) at 180 °C.