

## Supplementary Information

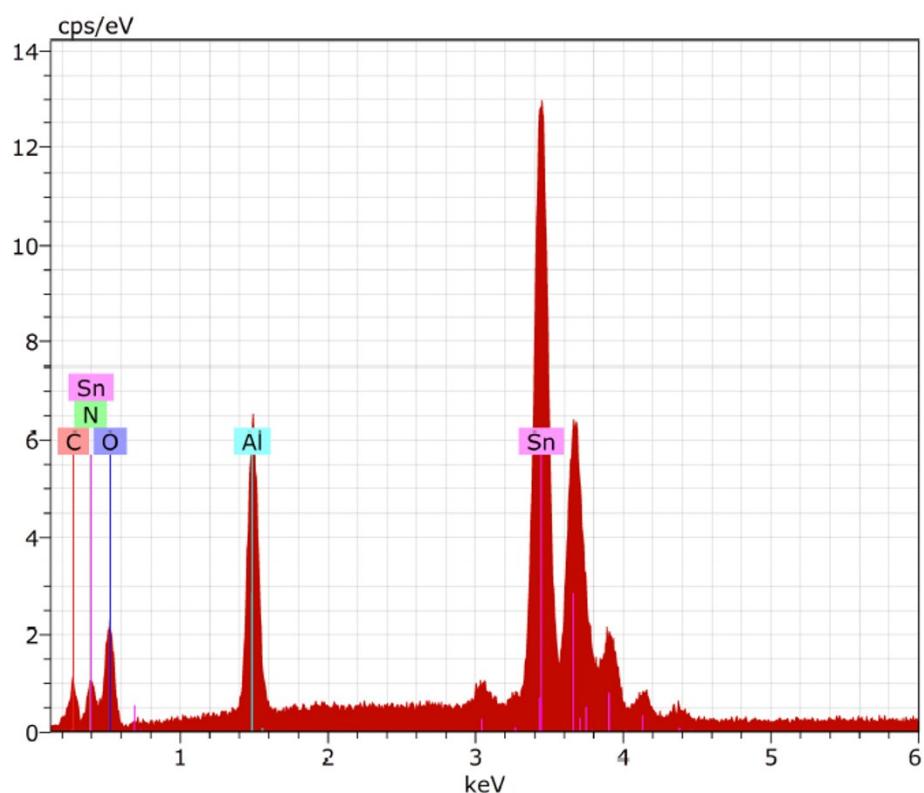
### Formation of tin-based crystals from SnAgCu alloy under formic acid vapor

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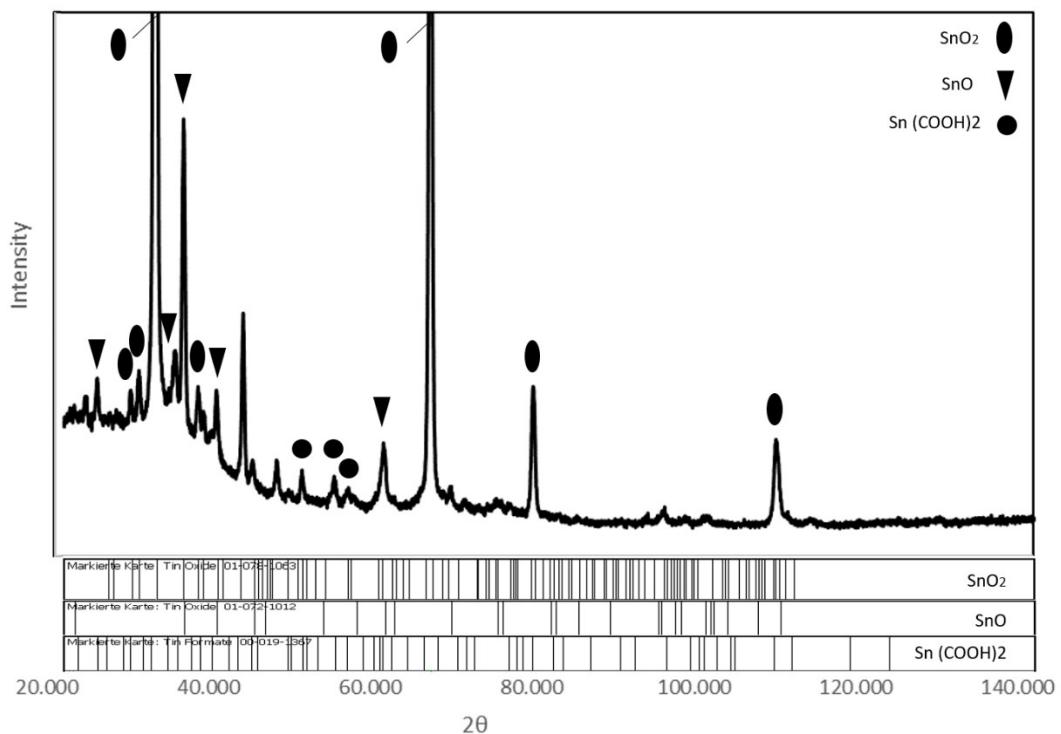
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Element	Series	unn. C [wt. %]	norm. C [wt. %]	Atom. C [at. %]	Error (3 Sigma) [wt. %]
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Kohlenstoff	K-series	2.92	3.02	12.04	2.16
Stickstoff	K-series	3.56	3.69	12.58	2.47
Sauerstoff	K-series	9.90	10.25	30.64	5.10
Aluminium	K-series	7.97	8.25	14.63	1.22
Zinn	L-series	72.22	74.78	30.12	6.61
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Total:		96.57	100.00	100.00	

**Figure S-1.** Energy dispersive X-ray (EDX) spectrum and corresponding elemental analysis of the crystals grown on AlN substrate. Measurements were performed with a Zeiss EVO MA 15 scanning electron microscope equipped with a Bruker XFlash 6/30 detector. The authors thank Mr. Maxim Hiersing at ContiTermic Microelectronic GmbH (Ingolstadt) for the kind collaboration.



**Figure S-2.** X-ray diffraction (XRD) spectrum of the crystals grown on a glass substrate. The attribution of the lines to the  $\text{SnO}_2$ ,  $\text{SnO}$  and  $\text{Sn}(\text{COOH})_2$  faces is marked with different symbols. Measurements were performed with a diffractometer (Empyrean) using Co-  $\text{K}\alpha 1$  radiation ( $\lambda = 1.788\text{\AA}$ ) at an accelerating voltage of 40 kV. The diffracted beam was scanned in steps of  $0.03^\circ$  across a  $2\theta$  range of  $20\text{--}140^\circ$ . The authors thank Prof. Ulrich Tetzlaff of THI and his team for the kind collaboration.