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Title	Comparative Spectroscopic Study Revealing Why the CO_2 Electroreduction Selectivity Switches from CO to $HCOO^-$ at Cu‑Sn- and Cu–In-Based Catalysts.
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Aims	To investigate the selectivity change from CO to HCOO- on increasing the In/Sn content in the Cu-M bimetallic system. We also study whether these two related bimetal combinations follow similar general structure–activity trends.
Why is this important?	It provides a novel understanding of what factors affect the selectivity of a bimetallic catalyst system helping to design more selective catalysts for future applications.
What methods were used?	Product Analysis: GC-Headspace; HPLC Material characterisation: SEM, In-situ Raman, XRD, Quasi In-situ XPS, In-situ XAS Catalyst synthesis: Dynamic Hydrogen Bubble Technique, Electrodeposition
What was learned?	Cu rich systems produce CO predominantly whereas Cu poor systems produce HCOO-. Whilst both the Cu rich systems gave similar selectivity the surface speciation was different for both the bimetallic systems. Therefore, identical mechanisms can't be used to explain the behaviour of these two bimetallic systems.
How could this research benefit citizens, society and other researchers?	CO_2 conversion is an essential step in closing the anthropogenic carbon cycle. The main challenges affecting electrochemical CO_2 conversion pertain to product selectivity and production rates. This research sheds new light on mechanisms governing the product selectivity across different bimetallic systems.
Link to full paper/abstract	https://pubs.acs.org/doi/full/10.1021/acscatal.2c04419