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Title:	Compressive strain induced by multiple phase distribution and atomic ordering in PdCu nanoparticles to enhanced ethanol oxidation reaction performance
Authors:	Gautam, Ujjal K (/jspui/browse?type=author&value=Gautam%2C+Ujjal+K) Kaur, Komalpreet (/jspui/browse?type=author&value=Kaur%2C+Komalpreet)
Keywords:	Structural ordering Fuel cell
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Abstract:	The catalytic properties of the materials can be altered with different arrangements of atoms, either in ordered or disordered manner. To study this behavior in detail, we have selected compounds based on Pd and Cu with different atomic arrangements and phase distribution. Nanoparticles of Pd1-xCux with different atomic ratios and phase states are obtained by a facile one pot solvothermal method. The multiple combinations of structurally ordered and disordered phases are tuned by optimizing several synthetic strategies, which are qualitatively and quantitatively characterized by X-ray diffraction, X-ray photoelectron spectroscopy, X-ray absorption spectroscopy and transmission electron microscopy measurements. Electrocatalytic ethanol oxidation reaction (EOR) is carried out in alkaline medium for all these synthesized Pd1-xCux nanoparticles. It is observed that the EOR activity and stability are enhanced in comparison to the commercial Pd/C catalyst, which can be attributed to the atomic ordering and compressive strain introduced upon optimized phase distribution.
Description:	Only IISER Mohali authors are available in the record.
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