

### Combinatorial study to develop optimized PdIrCe ternary catalyst for the ORR in PEMFC

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Recently, Pd based catalysts, as an alternative of Pt for PEMFC, has been developed through various approach such as alloy catalysts. However, finding the optimized composition of various Pd-based alloys requires consumption of time and effort. In this experiment, optical screening, one of the promising combinatorial methods, was used to find the optimum composition among Pd, Ir, and Ce as the catalysts for oxygen reduction reaction (ORR). The 66 spots having various compositions among Pd, Ir, and Ce were prepared on carbon paper. Comparison of ORR activities for the spots was performed through the intensity of emitted fluorescence from each spot. The optimized composition obtained from optical screening was synthesized as a single catalyst. Electrochemical properties including ORR activity and stability were examined and compared to Pd/C and Pt/C.