

Crossing the Valley of Death: From Fundamental to Applied Research in Electrolysis

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The growing societal and political focus on the use of environmentally friendly technologies has led to an ever-increasing interest in electrolysis technologies in the scientific communities. This development is reflected by the plethora of candidate catalysts for the hydrogen and oxygen evolution reactions, as well as the CO₂ reduction reaction, reported in the literature. However, almost none of them entered the stage of application yet. Likewise, the reports on process engineering inadequately address the utilization of these catalysts, as well as electrode and cell concepts, that might be suitable for the market. Evidently, a holistic approach using proper electrode design with novel materials in suitable cells is key towards a future application. We herein report on two examples on how to form electrodes for the hydrogen evolution as well CO₂ reduction reaction and show key problems on the way towards an application