

Evolution of the electrochemical interface in high-temperature fuel cells and electrolyzers - DTU Orbit (08/11/2017)

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The critical region determining the performance and lifetime of solid oxide electrochemical systems is normally at the electrode side of the electrode/electrolyte interface. Typically this electrochemically active region only extends a few micrometres and for best performance involves intricate structures and nanocomposites. Much of the most exciting recent research involves understanding processes occurring at this interface and in developing new means of controlling the structure at this interface on the nanoscale. Here we consider in detail the diverse range of materials architectures that may be involved, describe the evolution of these interface structures and finally explore the new chemistries that allow control and manipulation of these architectures to optimize both performance and durability.

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