

**Comparative Investigation of Polarization Mechanism
of Sputter Deposited Cermet Cathodes Interlayers by
Impedance-Spectra Time Relaxation Transform
Technique**

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The influence of the structure of ultradisperse YSZ+Pt cermet layers on polarization resistance of SOFC cathode was investigated. The cermet layers were deposited by reactive magnetron sputtering with inclined or direct beams to YSZ surface. The polarization resistance was determined from the impedance spectra of the "air/YSZ+Pt/YSZ/Pt/air" electrochemical cell. There is a unique transform of imaginary part of impedance frequency distribution to time relaxation distribution of the polarization resistance. The transformation method is being described. The data obtained were interpreted in terms of the cathode reaction microkinetic model. The time relaxation spectra peaks near 10^{-1} s and 10^{-3} s were attributed to oxygen adsorption and oxygen ion diffusion, respectively. The influence of deposition and heating conditions, cathode electrical bias on the time relaxation spectra were considered. The results were compared with morphology features of samples under investigations.