# Numerical study on the effects of graded electrode in solid oxide fuel cell

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In this paper, an electrochemical model of solid oxide fuel cell (SOFC) was developed to analyze the effects of grading in electrode, which vary both the active surface area and the effective diffusivity within the electrode. The cases of particle-size graded and the porosity-graded electrode were investigated, and it show that the particle-size graded electrode has better effects on improving cell performance. Detailed studies were performed to investigate the influences of the linear and second-order graded electrode on cell polarization. Consequently, it can be concluded that the benefits of graded electrodes were dependent on the activation and concentration overpotentials.
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