

PEM fuel cells with bio-ethanol processor systems: a multidisciplinary study of modelling, simulation, fault diagnosis and advanced control

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Abstrak

PEM fuel cells with bio-ethanol processor systems presents a control system design that provides basic regulation of the hydrogen production process with PEM fuel cells. It then goes on to construct a fault diagnosis system to improve plant safety above this control structure. PEM fuel cells with bio-ethanol processor systems is divided into two parts: the first covers fuel cells and the second discusses plants for hydrogen production from bio-ethanol to feed PEM fuel cells. Both parts give detailed analyses of modeling, simulation, advanced control, and fault diagnosis. They give an extensive, in-depth discussion of the problems that can occur in fuel cell systems and propose a way to control these systems through advanced control algorithms. A significant part of the book is also given over to computer-aided engineering software tools that can be used to evaluate the dynamic performance of the overall plant.