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## General equation of power behavior in fuel cells and its experimental application

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The analytical development of an equation that allows representing the general behavior of electrochemical cells and its direct application are presented in this work. In particular, proton exchange membrane fuel cells (PEM) were analyzed. The equation accuracy was tested by contrasting with the experimental results obtained from the discharged slopes of PEM fuel cells constructed in the Research and Development Department of Renewable Energy (DIDER) and other technologies of fuel cells, although in those particular cases, the results were taken from bibliography. The proposed equation rises from a statement made by van Rysselbergue for electrolytic cells that work as power supply and around which an electrical current moves out of equilibrium. Considering the fuel cells developed in our laboratory, results of stacks of 5, 6 and 12 were analyzed. The proposed equation Pr = Ir (2-Ir) makes it clear that the relative power (Pr) is a quadratic function of the relative current (Ir) and shows a correlation coefficient close to 0.99 with respect to the experimental results of the prototypes.

## Biography

María José Lavorante is the Head Professor of Organic Chemistry at the Engineering University Escuela Superior Técnica Grl Manuel N Savio. She is an active Researcher of the Scientific and Technical Research and Development Institute for Defense, Argentina. She has participated in several international congresses of materials, renewable energy and PEM fuel cells. She is pursuing PhD in relation to alkaline water electrolyzers. She has published more than 10 papers in reputed journals over the last 3 years and has been serving as an Editorial Board Member.

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