عنوان مقاله:

Estimation of the dynamic parameters of a battery model under the hysteresis effect employing a hybrid algorithm of particle swarm optimization and grey wolf optimizer

محل انتشار:

فصلنامه سیستم های تبدیل انرژی الکترومکانیکی, دوره 1, شماره 3 (سال: 1398)

تعداد صفحات اصل مقاله: 7

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خلاصه مقاله:

An accurate estimation of battery model parameters is essential for dynamic simulation of electric vehicles. Generally, parameterizing battery models are difficult and complex. Therefore it requires powerful estimation algorithms to overcome time-consuming and computational costs. In this paper, the dynamic parameters of a battery model were estimated at 8 different temperatures and under the hysteresis effect. The estimation is based on a hybrid algorithm of particle swarm optimization and grey wolf optimizer. By this hybridization the ability of exploitation in particle swarm optimization and the ability of exploration in grey wolf optimizer improved and both variants were empowered. The algorithm was implemented to estimate parameter values by minimizing the error between experimental data and the predicted results to find an optimal solution for an accurate model. Following a comparison with G.Plett's, the results indicated that the proposed algorithm can reach higher precision in the battery behavior because of the lower error possibility.

کلمات کلیدی:

Battery, parameter estimation, enhanced self-correcting model, Hysteresis