Control del sistema de propulsión de un vehículo eléctrico híbrido con motor de hidrógeno, usando baterías y supercapacitores [

2022

text (article)

Analítica

The energy management of the propulsion and storage sources of a hybrid electric vehicle allows for reducing fuel use while increasing operating efficiency and components' lifetime. This article studies several control techniques for a hybrid vehicle with a hydrogen engine as the primary generation source and batteries and supercapacitors as combined storage sources. A comparison of the predictive methods with the base technique, dynamic programming, is presented. Different types of speed profiles are also studied to generalize the results. Finally, it is concluded that the predictive economic controller and the robust economic predictive controller allow efficiently manage of the storage elements through regenerative braking. As a result, driving profiles with reduced fuel consumption are achieved, thus operating the fuel cell at its highest efficiency points
The energy management of the propulsion and storage sources of a hybrid electric vehicle allows for reducing fuel use while increasing operating efficiency and components' lifetime. This article studies several control techniques for a hybrid vehicle with a hydrogen engine as the primary generation source and batteries and supercapacitors as combined storage sources. A comparison of the predictive methods with the base technique, dynamic programming, is presented. Different types of speed profiles are also studied to generalize the results. Finally, it is concluded that the predictive economic controller and the robust economic predictive controller allow efficiently manage of the storage elements through regenerative braking. As a result, driving profiles with reduced fuel consumption are achieved, thus operating the fuel cell at its highest efficiency points

Título: Control del sistema de propulsión de un vehículo eléctrico híbrido con motor de hidrógeno, usando baterías y supercapacitores electronic resource]

Editorial: 2022

Tipo Audiovisual: control robusto programación dinámica Pila de combustible supercapacitores baterías Economic predictive control Robust control Dynamic programming Fuel cell supercapacitor batteries Control predictivo económico

Documento fuente: MASKAY, ISSN 1390-6712, Vol. 12, Nº. 2, 2022 (Ejemplar dedicado a: MASKAY), pags. 1-14

Lengua: Spanish

Enlace a fuente de información: MASKAY, ISSN 1390-6712, Vol. 12, Nº. 2, 2022 (Ejemplar dedicado a: MASKAY), pags. 1-14
