

NONLINEAR AND ADAPTIVE ALTERNATING-CURRENT SERVO ELECTRIC MOTOR ANGULAR POSITION CONTROL METHOD AND SYSTEM

ABSTRACT

A nonlinear and adaptive alternating-current servo electric motor angular position control method and system. The method comprises: acquiring original electric motor rotor angular position data; inputting the original electric motor rotor angular position data into an electric motor rotor angular position control module; performing second-order time differentiation on the electric motor rotor position data, so as to generate electric motor rotor angular acceleration data; inputting the electric motor rotor angular acceleration data and an output from the electric motor rotor angular position control module into an incremental inverse dynamic control module at the same time; and inputting the output from the incremental inverse dynamic control module into an electric motor current control module. Therefore, an electric motor model and an electric motor load model required for parameter setting of a controller are not needed, thereby solving the technical problems in existing servo electric motor control technology of identification of an electric motor model and a load model being difficult and time variant parameter setting of a controller; and a simple, effective and high-performance nonlinear adaptive control method is provided.

FIG. 1