

TIRE MODEL AND ITS ROLE IN THE DESIGN OF ABS CONTROLLER FOR GROUND VEHICLE USING BRAKE-BY-WIRE TECHNOLOGY

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Abstract

This paper will give an overview of how the tire force can be modeled with the Pacejka's Magic tire formula and looks at the analysis and design of an ABS controller using a continuously adjustable electromechanical actuator where the ABS aims to control the skid and slip of the wheel to arbitrary set points provided by a higher level control system such as the electronic stability program (ESP). Thus, maximum friction force can be obtained together with a vibration free braking.