

Investigation of the Brake Force Distribution in Passenger Cars

Authors : Boukhris Lahouari, Bouchetara Mostefa

Abstract : The active safety of a vehicle is mainly influenced by the properties of the installed braking system. With the increase in road traffic density and travel speeds, increasingly stringent requirements are placed on the vehicle's behaviour during braking. The achievable decelerations are limited by the physical aspect characterized by the coefficient of friction between the tires and the ground. As a result, it follows that an optimized distribution of braking forces becomes necessary for a better use of friction coefficients. This objective could only be achieved if sufficient knowledge is available on the theory of vehicle dynamics during braking and on current standards for the approval of braking systems. This will facilitate the development of a braking force calculation algorithm that will enable an optimized distribution of braking forces to be achieved. Operating safety is conditioned by the requirements of efficiency, progressiveness, regularity or fidelity of a braking system without obviously neglecting the recommendations imposed by the legislator.

Keywords : brake force distribution, distribution diagram, friction coefficient, brake by wire

Conference Title : ICAMAME 2023 : International Conference on Aerospace, Mechanical, Automotive and Materials Engineering

Conference Location : Paris, France

Conference Dates : December 25-26, 2023