# A Theoretical Approach to the Study of the Braking Process

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**ABSTRACT**

In most cases, traffic accidents are accompanied by the braking process of the vehicle, so it seems that it is very important to study this issue and improve the accident investigation. The study of the braking process of a car is based on the determination of its deceleration depending on the coefficient of friction, based on the simplest physical laws.

**Keywords:** Brake, car, road traffic accidents, braking, automotive industry, friction coefficient.

## Introduction

Despite many studies on this issue, there are opportunities at the current stage of gathering knowledge on this issue and increasing the efficiency of road transport. In particular, attention should be paid to the experimental methods for determining the adhesion coefficient of the car wheel tire, the supporting surface and its model improvement features, there are calculations based on modern advances in science and technology [1-7]. There are many needs during the investigation of an accident. When braking a car, it is necessary to determine the adhesion coefficient of the tire. For example, before calculating the speed of this car, the amount of its deceleration is measured. The research is based on the process of braking a car [8-11]. Determining its deceleration depending on the coefficient of friction is carried out using the simplest physical laws. However, the methods used in practice such a definition is still imperfect [12-15].

## Materials and methods

In particular, we have a country in the tests conducted in the 1980s, which is widely recognized, which calls into question their current relevance. Brake elements are associated with the development of the automotive industry, in particular vehicles. In addition, in classical physics, force friction depends on two parameters: reaction force support and friction coefficient. That is, using the coefficient of friction, processes related to friction are calculated or require scientific justif



ication that is not appropriate. Finally, the parameters used in the calculation of deceleration, according to Ilarionov, are equal on the same road, but the conditions for vehicles of different mass and construction, and the characteristics of the tires contradict [16-21].

Despite many studies on this issue, at the current stage of gathering knowledge on this issue, there are opportunities to increase the

efficiency of the implementation of car transport. In particular, it is necessary to pay attention to the experimental methods for determining the coefficient of adhesion of a car wheel tire, the characteristics of the supporting surface and its model improvement, there are calculations based on modern advances in science and technology. events are based on a "foundation" where people's destinies are not very solid. That is why more and more new tests are being organized in our country, braking systems and braking elements of vehicles related to practice have slowed down the latter, and according to their results, the Ministry of Internal Affairs of Uzbekistan has issued a methodological guide for expert car technicians. issued an instruction. Problems seem to be solved. However, based on other data, it is valid only for certain makes and models of cars and at certain values of tires and braking speed [22-29]. That is, the benefit is not complete, it only reflects some aspects of the problem under consideration. based on data, it is valid only for certain makes and models of cars and at certain values of tires and braking speed [30-34]. That is, the benefit is not complete, it only reflects some aspects of the problem under consideration. based on data, it is valid only for certain makes and models of cars and at certain values of tires and braking speed [35-41]. That is, the benefit is not complete, it only reflects some aspects of the problem under consideration.

Many authors believe that the way out of this situation is to clearly understand the general meaning: external friction, friction force and friction coefficient. Thus, the term "external friction" should be understood as relative resistance. The movement that occurs between two bodies in the places of contact between them is their touching surfaces; by the term "frictional force" - the force in the relative movement of one body on the surface of the boundary between two bodies directed tangentially to the other under the influence of an external force; under the term "coefficient of friction" is understood the ratio of the force of friction between the two bodies to the normal force (this is the pressing of the bodies against each other).

As a rule, many studies of the braking process of vehicles consist of emergency (emergency) situation studies (study). A special car is minimized to determine braking and speed and stopping distance, which is studied using a minimization process. This is based on the complexity of the braking process. Integrated approach The braking process itself is complex. Including the coefficient of adhesion of the wheels to the road surface and other external factors [42-49]. When studying the braking process, it is necessary to determine the movement parameters in the car, as well as take into account the process of the braking process itself (braking distance, deceleration, deceleration time). Locking all wheels. All the wheels of the car, if we assume that it is moving in a straight line, it is blocked at the same time, then in the first moment it moves in a straight line, but soon the movement is very noticeable external forces, for example, on a horizontal path the slope of the drag component increases [50-56]. This means that the car will gradually move to the side and, if it does not have time to stop, will go off the road.

Rear wheel lock. If the rear wheels are locked while moving in a straight line, then the force associated with the release of kinetic energy will act on the car and its centre of gravity until its next turn. It helps the movement of the curve. But the vertical axis passing through the centre of gravity of some external forces tending to turn the car will not affect it. Even a small moment, for example, due to unequal braking forces on the right and left sides of the transverse cause, increases the angular velocity of the vehicle around the centre of rotation of the slope. If the connection between the tires and the road is too small to compensate for the torque, the rear end of the car will have little power and will move at a sufficiently high speed.

Front-wheel lock. When locking the front wheels only, the front part of the car is moving in a straight line, because this movement is determined by the position of the rotating rear wheels. However, the transverse slope, if any, is less in the car, but it will be more than blocking all four wheels that can move sideways.

## Conclusion

Wheel lock on one side of the vehicle. If the wheels on one side of a braked vehicle are on a less smooth surface than the other two wheels, the vehicle will roll in the direction of the high grip area. This phenomenon often occurs at the border between the main lane and the rest.

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