
Overview of different approaches to the non-steady-state rolling of wheels with elastic tires along the undeformed area

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The paper presents an overview of different approaches to the non-steady-state rolling of wheels with elastic tires. It also describes several unexpanded models initially developed for applications in the aircraft industry. The research shows that there is not any consistent model of the wheel rolling process, which can meet requirements of the automotive manufacturing and is free from hypothesis. The problem can be solved by combining the models. The authors propose a method of such combination, which is based on a “core-periphery” scheme: the slip-free rolling carcass is modeled with the help of kinematic links. A brush model of the periphery tire layers considers the slip.

Keywords: *tire dynamics, non-steady-state rolling, slip, tire modeling.*

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