SUMMARIES
REZIMEA

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STEERING OF ONE VEHICLE - GENERAL APPROACH FOR THE PLANE-MODEL

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Abstract:

The paper deals with the dynamic model of vehicle's turning. The model provides the possibility to obtain the relevant parameters for vehicle's stability and steering control monitoring.

The plane vehicle's model was observed. Input data are: supported mass characteristics (mass, moment of inertia and the position of the gravity center), vehicle wheelbase, lateral characteristics of tires, steering transmission ratio and wheel's turning angle.

The output from the dynamic model are lateral and longitudinal displacement of supported mass, the angle of rotation and speed of rotation of supported mass around the vertical axis (sidesliping), the speed of supported mass center of gravity, turning angles of all wheels as well as the position of the current rotation center, in the plane of the vehicles motion.

On the basis of these parameters, it is possible to analyze vehicle's steering and vehicle's stability at the prescribed regime.

In this paper, an example of vehicle's realignment was computed. This investigation is very important for traffic safety. The model should be used for lot of accident situation in road traffic.

Key words: Vehicle's dynamics, vehicle in the curvature.

UPRAVLJANJE VOZILOM – OPŠTI PRISTUP ZA RAVANSKI MODEL

Rezime: U radu se postavlja dinamički model zaokretanja vozila. Model pruža mogućnost dobijanja relevantnih parametara za praćenje stabilnosti i upravljivosti vozila.

Posmatran je ravanski model vozila. Za poznate veličine, ulazne podatke: karakteristika oslonjene mase (masa, moment inercije i položaj težišta), osovinsko rastojanje, bočna karakteristika pneumatika, prenosni odnos upravljanja i uglovi zaokretanja upravljajućih točkova, dobija se kao izlaz iz dinamičkog modela poprečno i podužno pomeranje težišta oslonjene mase, ugao rotacije i brzina rotacije oslonjene mase oko vertikalne ose (plivanje), brzina težišta oslonjene mase, uglovi skretanja svih točkova i položaj trenutnog centra rotacije u ravni kretanja vozila.

Na osnovu ovih parametara, moguće je analizirati upravljivost i stabilnost vozila pri zadatom režimu kretanja.U radu je urađen primer prestrojavanja vozila .

Ovo istraživanje je izuzetno važno za bezbednost saobraćaja. Model će biti korišćen za simulaciju vozila u mnogim saobraćajnim situacijama.

Ključne reči: Dinamika vozila, vozilo u krivini.