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Experimental identification of wheel-surface model parameters – various terrain conditions

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Abstract: The aim of the paper is to present the development of wheel-surface interaction model parameters estimation based on experiment results. Various terrain types are taken into account. Since the wheel interaction with a certain terrain cases (asphalt, concrete) are known and well described in case of straightforward motion and non-slip and slip cornering conditions, the skid-steered wheeled vehicles case needs to be analyzed. In case of described research various terrain types including snow, grass, asphalt and concrete are taken into account. Experimental stand designed and developed by authors allows to test the wheel-surface interaction for various terrain conditions and different driving directions. Test data were acquired for dry and wet sand, soil, grass and asphalt. Traction and side forces were acquired and used to identify the wheel-soil interaction model parameters.

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