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Computer simulation of the torque distribution system of a hybrid heavy truck in conditions of slippage of one of the wheels

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Abstract

© Published under licence by IOP Publishing Ltd. Mathematical and computer models for the motion of a hybrid heavy truck in conditions of wheel slip have been developed. Algorithms for the redistribution of the torque between the wheels to provide controllability and stability of motion along the guided path have been proposed. The efficiency of the developed algorithms is confirmed by the results of computer simulation in the MATLAB / Simulink system.

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References

- Qui L, Qian L, Zomorodi H and Pisu P 2017 Global optimal energy management control strategies for connected four-wheel-drive hybrid electric vehicles IET Intelligent Transport Systems 11 264-272
- [2] Andreev A F, Vantsevich V V and Lefarov AH 1987 Differentials of wheeled vehicles (M.: Machinostroenie) 176
- [3] Rajamani R 2011 Vehicle dynamics and control (Springer) 500
- [4] Dugoff H, Fancher P S and Segal L 1969 Tire performance characteristics affecting vehicle response to steering and braking control inputs. Final Report (US National Bureau of Standards) 105
- [5] Kiencke U and Nielsen L 2005 Automotive Control Systems (Springer) 521
- [6] Van E V, Gurjanova E O and Demyanov D N 2017 Development of control strategies by transmission elements of a hybrid truck in the case of boundary conditions XXVIII International innovation-oriented conference of young researchers and students (IIOCYRS - 2016) 219-222