Some Metrological Aspects of Applied Measurements. Automobile Transport

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key words

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Competitiveness in comparison with other types of modern road transport, along with the undoubted advantage of the prompt delivery of passengers and goods, is ensured by the implementation of measures for the constructive and technological optimization of rolling stock, which has increased active and passive mechanical, as well as environmental safety, comfort and ergonomics. Achieving these interrelated goals is impossible without the use of innovations in all areas and at all stages of the life cycle, from design, including manufacturing and operation, to disposal, and the use of control and measuring devices operating on the principles of direct and / or indirect registration of monitored parameters based on ultra-precise metrological methodologies that are optimal in specific environmental conditions and most appropriate for the multi-vector process of monitoring various parameters.

They characterize the values of indicators that determine the autonomy, efficiency and safety of the use of automobile wheeled rolling stock.

References

1. Singh V.K., Pathak A.K. Tapered multi-mode optical fiber sensor to detect petrol adulteration, Meeting on Optics and Photonics for Energy and the Environment (E2 2018) at the Light, *Energy and the Environment Congress*, 2018.
2. Ju W., Lu C., Liu C., Jiang W., Zhang Y., Hong F. Rapid Identification of Atmospheric Gaseous Pollutants Using Fourier-Transform Infrared Spectroscopy Combined with Independent Component Analysis, *Journal of Spectroscopy,* 2020, 14 P.
3. Xu P., Song K., Chen Y., Wei G., Wang Q. Fault diagnosis method of self-validating metal oxide semiconductor gas sensor based on t-ditribution stochastic neighbor embedding and random forest, *Review of Scientific Instruments*, 2019, vol. 90, no. 5, pp. 5502–5512.
4. Porterfield J. P., Satterthwaite L., Eibenberger S., Patternson D., McCarthy M. I. High sensitivity microwave spectroscopy in a cryogenic buffer gas cell, *Review of Scientific Instruments*, 2019, vol. 90, no. 5, pp. 1902–1914.
5. Nemirovsky Y., Stolyarova S., Blank T., Bar-Lev S., Svetlitza A., Zviagintsev A., Brouk I. A New Pellistor-Like Gas Sensor Based on Micromachined CMOS Transistor, *IEEE Transactions on Electron Devices,* 2018, vol. 65, no. 12, pp. 5494–5498.
6. Shlenkevitch D., Stolyarova S., Blank T., Brouk I., Nemirovsky Y. Novel Miniature and Selective Combustion-Type CMOS Gas Sensor for Gas-Mixture Analysis - Part 1: Emphasis on Chemical Aspects, Haifa, *Electrical Engineering Department, Technion — Israel Institute of Technology*, 2020, pp. 325–350.
7. Ma G., Zhou H., Zhang M., Li C., Yin Y., Wu Y. A High Sensitivity Optical Fiber Sensor for GIS Partial Discharge Detection, *IEEE Sensors Journal*, 2019, vol. 19, no. 20, pp. 9235–9243.
8. Addabbo T., Fort A., Mugnaini M., Panzardi E., Vignoli V. Measurement System Based on Electrostatic Sensors to Detect Moving Charged Debris With Planar-Isotropic Accuracy, *IEEE Transactions on Instrumentation and Measurement*, 2019, vol. 68, no. 3, pp. 837–844.
9. Nam H., Kim J.-S., Kim H., Lee J. H., Kang Y. Il, Park B. H. Development of a radiative transfer model for the determination of toxic gases by Fourier transform-infrared spectroscopy with a support vector machine algorithm, *Instrumentation Science and Technology*, 2019, vol. 47, no. 3, pp. 264–277.
10. Lan L., Chen J., Zhao X., Ghasemifard H. VCSEL-Based Atmospheric Trace Gas Sensor Using First Harmonic Detection, *IEEE Sensors Journal*, 2019, vol. 19, no. 13, pp. 4923–4931.