Journal of Physics: Conference Series 2018 vol.1058 N1

Development of the setup for study of the gas ionization in the pulsating mode of combustion

Sadikov K., Malahov A., Larionov V., Saifullin E., Larionova I.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© 2018 Institute of Physics Publishing. All rights reserved. At present, known methods of direct conversion of the chemical energy of gaseous fuels to electrical energy are not so effective. This work is directed to developing the setup for experimental study of the gas ionization processes in the pulsating mode of combustion. This problem being solve for the first time. As result, schematic diagram and methodological recommendations will be developed which will be subsequently used for experimental studies.

http://dx.doi.org/10.1088/1742-6596/1058/1/012060

References

[1] Patent RU No 2109393, 20.04.1998. Sposob polucheniya elektricheskoy energii i rezonansnyiy MGD - generator dlya ego realizatsii / Danilin A. V. - ref-separator -

[2] Patent RU No 2418968, 20.05.2011. Sposob pryamogo preobrazovaniya energii impulsnogo detonatsionnogo sgoraniya topliva v elektricheskuyu energiyu i generator peremennogo toka dlya ego realizatsii / Danilin A. V. - ref-separator -

[3] Vogin C. and Alemany A. 2007 Analysis of the flow in a thermo-acoustic MHD generator with conducting walls European Journal of Mechanics, B/Fluids 26 479-493

[4] Ermakov R.A., Galiullin R.G., Larionov V.M. and Nikolaev A.N. 2008 A gas compressor based on a piston-type acoustic resonator Chemical and Petroleum Engineering 44 387-392

[5] Ermakov R.A., Sadykov A.F., Galiullin R.G. and Larionov V.M. 2011 Assessment of energy efficiency of gas supercharger based on acoustic resonator Chemical and Petroleum Engineering 46 749-751

[6] Bykovets A.P., Larionov V.M. and Marchukov E.Y.u 1992 Izvestiya Vysshikh Uchebnykh Zavedenij (Aviatsionnaya Tekhnika) The influence of a steam injection on vibrational burning in a modelled combustion chamber 71-74

[7] Larionov V.M., Sadikov K.G. and Mitrofanov G.A. 2016 Interaction of electric and acoustic vibrations in combustion Journal of Physics: Conference Series 669 012042

[8] Larionov V.M., Saifullin E.R. and Semenova E.V. 2016 Self-exited gas oscillations in Helmholtz resonator type combustor Journal of Physics: Conference Series 669