

Experimental study of an impulse electric discharge with liquid electrodes

Sadriev R., Son E., Bagautdinova L., Gaisin A., Gaisin F.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© 2017, Pleiades Publishing, Ltd. Experimental results are presented on transition of a streamer shape multichannel discharge into a multichannel spark discharge. We present current-voltage characteristics of a multichannel streamer discharge at atmospheric and reduced pressures as well as temperature distribution between a plate-like copper electrode and technical water.

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References

- [1] Fortov, V.E., Son, E.E., Gaisin, F.M., Son, K.E., O Dzhon Khe, and I Khe long, *Plazmennye tekhnologii (Plasma Technology)*, Dolgoprudnyi: Mosk. Fiz.-Tekh. Inst., 2006.
- [2] Gaisin, F.M. and Son, E.E., *Elektrofizicheskie protsessy v razryadakh s tverdymi i zhidkimi elektrodami (Electrophysical Processes in Discharges of Solid and Liquid Electrodes)*, Sverdlovsk: Ural'sk. Univ., 1989.
- [3] Gaisin, F.M. and Son, E.E., *Emergence and development of the volume discharge between solid and liquid electrodes*, Smirnov, B.M., Ed., *Khim. Plazmy*, 1990, vol. 16, pp. 120.
- [4] Bruggman, P. and Chryphe, L., *Phys. D: Appl. Phys.*, 2009, vol. 42, 053001.
- [5] Gaisin, Al.M. and Son, E.E., *High Temp.*, 2010, vol. 48, no. 3, pp. 447.
- [6] Gaisin, Al.M. and Son, E.E., *High Temp.*, 2010, vol. 48, no. 5, pp. 747.
- [7] Shakirova, E.F., Gaisin, Al.F., and Son, E.E., *High Temp.*, 2011, vol. 49, no. 3, pp. 325.
- [8] Gaisin, Al.F. and Mustafin, T.B., *High Temp.*, 2011, vol. 49, no. 4, pp. 615.
- [9] Gaisin, Al.F., *High Temp.*, 2013, vol. 51, no. 6, pp. 863.
- [10] Son, E.E., Sadriev, R.Sh., Gaisin, Al.F., Bagautdinova, L.N., Gaisin, F.M., et al., *High Temp.*, 2014, vol. 52, no. 6, pp. 939.
- [11] Gaysin, Al.F., Gaysin, F.M., Shakirova, E.F., and Samitova, G.T., in *COST TD1208 Workshop on Application of Gaseous Plasma with Liquids*, 2015, p. 164.
- [12] Gaysin, Al.F., Sadriev, R.Sh., Abdullin, I.Sh., and Zheltuhin, V.S., in *COST TD1208 Workshop on Application of Gaseous Plasma with Liquids*, 2015, p. 160.
- [13] Sadriev, R.Sh., Bagautdinova, L.N., Gaisin, F.M., and Bulatov, R.I., *Vestn. Kazansk. Tekhnol. Univ.*, 2015, no. 22, vol. 18, p. 107.
- [14] Lu, X.P. and Laroussi, M., *J. Phys. D: Appl. Phys.*, 2003, 36661-5.
- [15] Bruggeman, P., Ribezl, E., Degroote, J., Vierendeels, J., and Leys, C., *J. Optoelectron. Adv. Mater.*, 2008, 101964.
- [16] Fortov, V.E., Smirnov, V.P., Son, E.E., Bykov, Yu.A., Grabovskii, E.V., Gribov, A.N., Oleinik, G.M., and Savel'ev, A.S., *High Temp.*, 2015, vol. 53, no. 6, pp. 775.