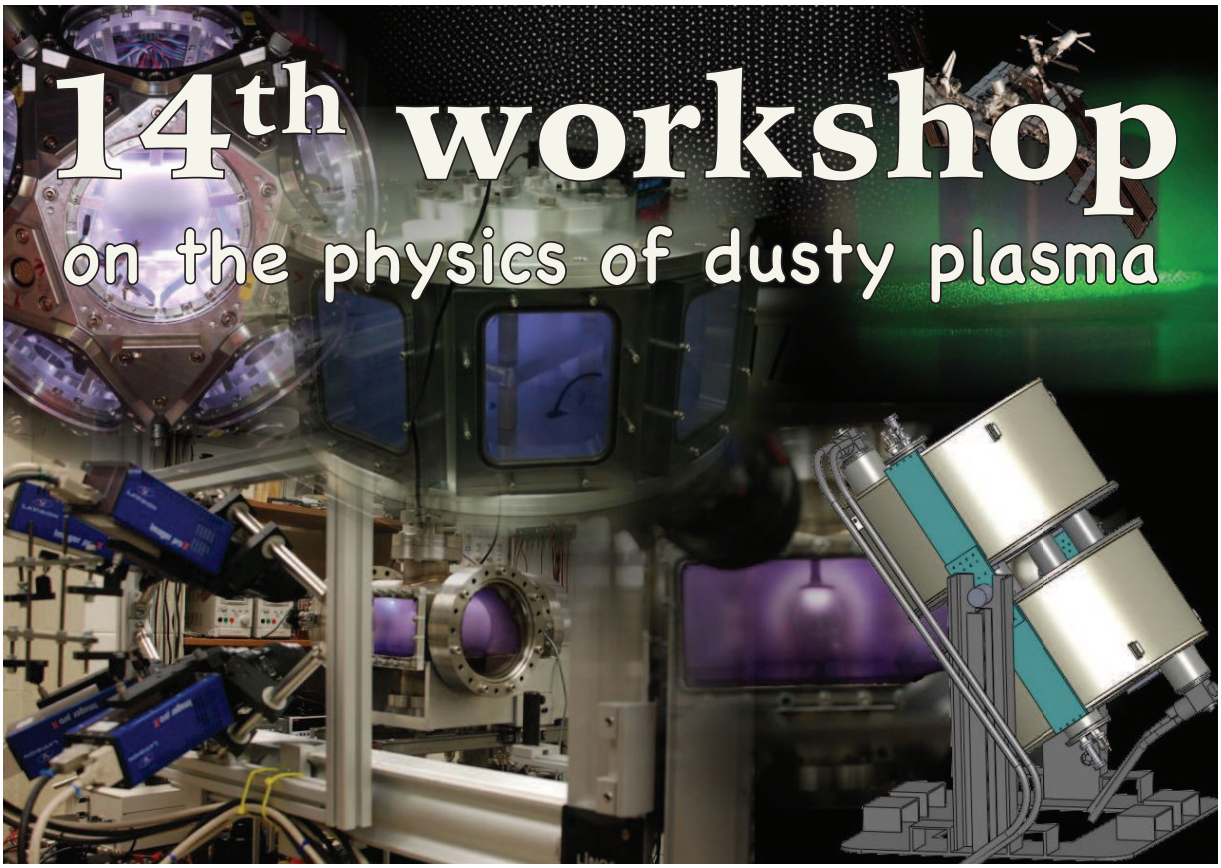

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SMALL DISPERSED PARTICLES SYNTHESIS IN THE PLASMA OF ARC AND RADIO-FREQUENCY DISCHARGES

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In the plasma of combined discharge the small dispersed graphite particles were obtained. The synthesis process of small dispersed particles in the plasma of combined discharge represents two parallel processes which are synthesis process of polydispersive graphite particles using arc discharge graphite electrode evaporation and extraction of small dispersed graphite particles using separation method of polydispersive dust structure in the plasma of radio-frequency (RF) discharge. The arc-discharge evaporation method is well known method for obtaining of different particles [1,2], whereas separation method in plasma of radio-frequency is a new method of obtaining small dispersive particles [3-5].

Obtained samples of polydispersive graphite microparticles have diameter in range of 1-100 μm. The size and chemical composition of samples were examined using a scanning electron microscope Quanta 3D 200i (SEM, FEI, USA). The average size of graphite particles after separation in RF discharge was equal to 5 μm.

The advantage of proposed method in the plasma of combined discharge is the simplicity of technology for obtaining small dispersed particles without limitations on the choice of materials.

1. V. E. Muradyan, Yu. M. Shulga, M. Leonowicz, Ferromagnetic nanoparticles produced by arc-discharge evaporation of Fe-Ni-graphite electrodes / Carbon Nanomaterials in Clean Energy Hydrogen Systems, 2008, pp 313-316.
2. Yoshinori Ando, Sumio Iijima, Preparation of carbon nanotubes by arc-discharge evaporation / *Jpn. J. Appl. Phys.* Vol. 32, No 1A/B, pp 107-109.
3. D.G. Batryshev, T.S. Ramazanov, M.K. Dosbolayev, M.T. Gabdullin, Separation Process of Polydisperse Particles in the Plasma of Radio-frequency Discharge / Journal of nano- and electronic physics, Vol. 6 No 3, 03032(3pp) (2014).
4. D. Batryshev, T. Ramazanov, M. Dosbolayev, M. Gabdullin, S. Orazbayev, Method of separation of polydisperse particles in plasma of radio–frequency discharge / Book of Abstract International Conference on Strongly Coupled Coulomb Systems, Santa Fe, New Mexico, USA, 2014, July 27th – August 1st, P. 127.
5. D. Batryshev, T. Ramazanov, M. Dosbolayev, M. Gabdullin, S. Orazbayev, Separation of Polydisperse Particles In Plasma of Radio–Frequency Discharge / Book of Abstract 7th International conference on the Physics of Dusty Plasma, New Delhi, India, March 3-7, 2014, P. 100.