

Abstract Submitted
for the GEC12 Meeting of
The American Physical Society

Spectroscopy of multicomponent thermal plasma ANTON LEBID¹, ANATOLIY VEKLICH², VIACHESLAV BORETSKIJ³, SERGIY FESENKO⁴, ROSTISLAV SEMENYSHYN⁵, Taras Shevchenko Kyiv National University, Kyiv, Ukraine — Applications of composite materials in switching devices for the electrical engineering industry stimulate the interest in studying of the arc discharge plasma between composite electrodes. As an industrial application of silver – cadmium oxide leads to the environmental pollution, the more attention must be paid to the development of composites, which contain alternate materials, in particular, Ag-SnO₂-ZnO. Composite materials on copper base with addition of high-melting metals, like tungsten and molybdenum, are widely used as well. The plasma parameters of free burning electric arc discharge between composite electrodes Ag-SnO₂-ZnO, Cu-Mo and Cu-W were obtained by optical emission spectroscopy. The radial profiles of temperature and electron density at different arc currents were obtained by spectroscopy techniques. These experimental results were used in calculation of plasma composition in assumption of local thermodynamic equilibrium. So, electric erosion properties of such kind materials were testified. The selection of CuI, AgI, ZnI, MoI and WI spectral lines and their spectroscopic data were carried out.

¹postgraduate student

²PhD, associate professor, senior researcher

³PhD, assistant lecturer

⁴postgraduate student

⁵master student

Anton Lebid
Taras Shevchenko Kyiv National University, Kyiv, Ukraine

Date submitted: 14 Jun 2012

Electronic form version 1.4