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# On the features of the composite high-temperature collector performance in the thermionic converter at reduced cesium pressures

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*An important aspect in finding ways to improve the efficiency of the thermionic converter (TIC) is to investigate the influence of the uneven distribution of the work function on the surface of the collector on the distribution of the plasma parameters in the converter. The reason for this is the formation of so-called "spot field" on the surface of the composite collector. Under conditions of the TIC plasma the potential field combination in the interelectrode gap and the "spot field" on the collector surface can lead to separation of the electrode work functions between the areas with different work functions. The study tested a mathematical model of high-temperature TIC with the composite collector, at reduced cesium pressure. Moreover, we conducted the numerical solution of differential equations describing the state of the plasma in the interelectrode gap of the converter. According to the theoretical results obtained, we made an attempt to make qualitative assumptions concerning the processes occurring in the TIC with a composite collector.*

**Keywords:** TIC, composite collector, spot field, direct conversion, plasma.

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