

ARCJET PLASMA TEMPERATURE ESTIMATION IN THRUSTER DEVICE

V. I. Gorbunkov, V. V. Kositsin, V. I. Ruban, V. V. Shalay

Omsk State Technical University,
Russia, Omsk, Mira Ave., 11, 644050

The kinetic theory of gases methods has been used to evaluate plasma arc parameters in the arcjet thruster device. It greatly means the compression process in adiabatic character and gas temperature increasing for excited atoms Boltzmann distribution over the energy levels.

Using argon gas for arcjet working process carrying out, the way of gas temperature evaluation is offered. The results of the study can be use in the spacecraft arcjet development.

Keywords: arcjet thruster, high pressure argon plasma, specific impulse, gas and electron temperature, the adiabatic character of the compression process, local thermal equilibrium, the Boltzmann distribution, emission spectroscopy.

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GORBUNKOV Vladimir Ivanovich, Candidate of Physico-Mathematical Sciences, Associate Professor of Theoretical and General Electrical Engineering Department, Head of Photonics and gas discharges spectroscopy Laboratory.

SPIN-code: 2858-6763; AuthorID (RSCI): 601948

ORCID: 0000-0002-5495-5641

AuthorID (SCOPUS): 36954424000

ResearcherID: Q-5370-2016

KOSITSYN Valeriy Vladimirovich, Candidate of Technical Sciences, Research Associate of the Research Laboratory at the Aviation and Rocketry (AVIRS) Department.

SPIN-code: 8766-8891; AuthorID (RSCI): 723680

AuthorID (SCOPUS): 56503934600

RUBAN Viktor Ivanovich, Researcher of the Research Laboratory at the AVIRS Department.

SPIN-code: 9889-2810; AuthorID (RSCI): 723703

AuthorID (SCOPUS): 56503331600

SHALAY Viktor Vladimirovich, Doctor of Technical Sciences, Professor, Head of Transport, Oil and Gas Storage, Standardization and Certification Department, President of OmSTU.

SPIN-code: 2322-6820; AuthorID (RSCI): 9913

ORCID: 0000-0003-0635-4849

AuthorID (SCOPUS): 35792469000

AuthorID (SCOPUS): 56755298300

AuthorID (SCOPUS): 57190972363

ResearcherID: P-8233-2015

Address for correspondence: vigorbunkov@list.ru

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