

1st Reporting Period (Closed)

2.1 List of publications related to LIGHT-TPS project

Publications in conference proceedings or presentation:

1. Husarova Irina, Victor Tykhyy, Alexander Potapov. Thermal protection structures of reusable spacecraft. Collection of abstracts of 8th international conference “materials and coatings in extreme conditions: investigation, application, environmentally friendly manufacturing and recycling technology. Kiev, Ukraine, September 2014, p. 29.
2. M. Parco, Super light-weight thermal protection system for space application (LIGHT-TPS), Workshop Extreme Conditions Materials: A Global Overview in Aerospace Applications, FP7 HYDRA Project – Dissemination Workshop, San Sebastian (Spain), 27th February 2015. (Presented by M. Parco)
3. S. Prokopchuk, Husarova Irina, Yuriy Falchenko. New materials and technology for reusable re-entering spacecraft. Collection of abstracts of 17th International youth research-to-practice conference “Human and Space”. Dnipropetrovsk, Ukraine, April 2015.
4. V. Yatsenko. Optimization methods in material science: synergetics, dynamical models, and optimization problems. 3rd International Scientific conference «Nonlinear analysis and applications», 2015, May 15. Book abstracts. (Presented by V. Yatsenko)
5. Petrushinets L.V., Kharchenko G.K., Gurienko V.P., Fedorchuk V.E., Ustinov A.I., Melnichenko T.V., Gusarova I.A., Yatsenko V.A., Falchenko Iu.V. DIFFUSION WELDING OF HIGH-TEMPERATURE Ni-Cr ALLOY FOILS, VII International Scientific conference Welding and related technologies, 21-21 may 2015, Kiev, pp 34.
6. Fedorchuk V.E., Shinkarenko V.S., Labur T.M., Gusarova I.A., Falchenko Iu.V. TECHNOLOGY OF HONEYCOMB CORE PREPARATION FOR WELDING THREE-LAYER ELEMENTS OF SATELLITE PROTECTION, VII International Scientific conference Welding and related technologies, 21-21 may 2015, Kiev, pp 87.
7. V. Yatsenko. A. Girenko, I. Husarova, Yu. Falchenko, L. Silvestroni. Superlight-weight thermal protection systems for space applications: conception, methods, and applications. 6th European Conference for Aeronautic and Space Sciences (EUCAS 2015), Book Abstracts, 29 June – 3 July 2015, Krakow, Poland. (Presented by V. Yatsenko)

Publications in scientific journals:

1. Grigoriev O.N., Frolov G.A., Evdokimenko U. I., Kisel V.M., Panasyuk A.D., Melakh L.M., Kotenko V.A., Neshpor I.P., Koroteev A.V. Ultra-high Temperature Ceramics Behavior under the Impact of Concentrated Solar Radiation, Oxidation and Erosion in Gas Flows. “Space Investigations in Ukraine 2012-2014”, report COSPAR, Kyiv, Academperiodika, 2014, p. 126-132.
2. Podcherniaeva I.A., Panasyuk A.D., Frolov G.A., Yurechko D.V., Vasilkovskaya M.A. Bloshchanevich A.M. ZrB₂ based laser coating on graphite. Powder Metallurgy, 2014, No. 11/12, p. 87-92.
3. Neshpor I.P., Mosina T.V., Grigoriev O.N., Panasyuk A.D., Pasichnyi V.V., Frolov G.A., Koroteev A.V. The investigation of ZrB₂ based UHTCs corrosion resistance under concentrated solar radiation impact. Powder Metallurgy, 2015, No. 3/4, p. 77-83.
4. Husarova Irina, Tamara Man'ko. Selection of heat insulation for multilayer thermal protection structures of re-entering spacecraft. System design and analysis of aerospace structures characteristics, 2014, b.XVII, p.54-62.
5. Husarova Irina, Tamara Man'ko, Studying of insulation characteristics of heat-resistant materials for re-entering spacecraft. University of Dnipropetrovsk bulletin, 2014, b.22. p.35-40.
6. Husarova Irina, Victor Tykhyy, V. Husev et al. Prospective thermal protection structure of re-entering spacecraft with metallic load-bearing element. Collection of research papers of National Aerospace University, Kharkiv Aviation Institute “issues of designing and manufacturing of flight vehicle”. Kharkiv, KhAI, 2014, issue 4(80). p. 28-44.

7. Husarova Irina, Victor Tykhyy, Eugene Shevtsov et al. Thermal protection structures of re-entering spacecraft with frame structure made of nonmetallic materials. Scientific-technical collection of SSAU, Yuzhnoye SDO "Space-system engineering. Military rocketry, 2015, issue 1.
8. Victor Tykhyy, Eugene Shevtsov, Husarova Irina, Thermal-protection structures of reusable spacecraft with different external load-bearing elements. "Automatic welding", 2015, issue 3-4. P. 1-6.

Press releases:

1. M. Parco, New materials and construction technologies for super light-weight thermal protection systems, Space Research projects under the 7th Framework Programme for Research (6th call), European Commission, DOI: 10.2769/88565.

2nd Reporting Period (ongoing)

Publications in conference proceedings or presentation:

9. D. Sciti, L. Silvestroni, L. Zoli, A. Bellosi. Ultra High Temperature Ceramic Matrix Composites: Short vs continuous fibers, presented at Ultra-High Temperature Ceramics: Materials for Extreme Environment Applications II, An ECI conference, Surfers Paradise – Australia, 12-16 April 2015. Plenary talk.
10. L. Silvestroni, D. Sciti, F. Monteverde, K. Stricker, H.-J. Kleebe. Microstructure evolution of a W-doped ZrB₂ composite upon high-temperature oxidation, International Forum on Multifunctional Material Systems in Extreme Environments hosted by TAMU, 2-3 May 2016, Texas.
11. V. Solntsev, V. Skorokhod, G.Frolov, K.A. Konstantyn Petrash, T. Solntseva, A. Potapov and I. Gusarova. Development of heat-resistant niobium-based alloy for thermal protection of rocket space technology, COSPAR 2016, July 30 - August 7, Istanbul.
12. O. Grigoriev, I. Neshpor, T. Mosina, A. Panasyuk, A. Koroteev, O. Buryachek, V. Gusev, Gusarova I and Potapov A. ZrB₂ - Based Ultra-High-Temperature Ceramics Oxidation Behaviour, COSPAR 2016, July 30 - August 7, Istanbul.
13. V. Yatsenko, I. Falchenko, V. Fedorchuk and L. Petrushynets. The influence of the free space environment on the super lightweight thermal protection system: Conception, methods and risk analysis, COSPAR 2016, July 30 - August 7, Istanbul.

Publications in scientific journals:

14. Husarova I.A., Manko T.A., Potapov A.M., Materials and structures of reusable spacecraft heat protection, Ukrainian Materials Research Society Bulletin, 2015.
15. F. Monteverde and L. Silvestroni. Combined effects of WC and SiC on densification and thermo-mechanical stability of ZrB₂ ceramics, Corrosion Sciences