



RESUME

SURNAME: Nurmatov **FIRST NAME:** Shavkat

AFFILIATION AND OFFICIAL ADDRESS:

Institute of Material Sciences Scientific Association “Physics-Sun” Academy of Sciences of the Republic of Uzbekistan, 100084, Tashkent, Chingiz Aytmatov str., 2-B

DATE AND PLACE OF BIRTH: 28.11. 1973, Tashkent region

NATIONALITY: Uzbekistan

EDUCATION

BSc and MSc degrees: 1995, Tashkent State University, Tashkent, Uzbekistan.

PhD, Senior scientist: 2011, Physical Technical Institute Uzbekistan Academy of Sciences, Tashkent, Uzbekistan.

CAREER/EMPLOYMENT

(Employers, positions and dates)

1996-up to now- Senior scientist, head of the laboratory №5 on the use of solar energy, deputy director of the Institute of Material Sciences Scientific Association “Physics-Sun” Academy of Sciences of the Republic of Uzbekistan, Tashkent.

SPECIALIZATION

Main field: Physics

Other fields: Material science, Thermal storage materials, Renewable energy sources. Research and management in big scale mirror concentrating systems. Applied solar energy.

Current research interest International Cooperation, Innovation Activity.

Honors, Awards, Fellowships, Membership of Professional Societies:

2006 Participant in STCU Award (Project 3438) – 24 months

2014 Participant at Indian ITEC program, supported by Indian Government

2014 – 2015 Project manager in project “Research of structure and thermal properties of heat storage materials exposed to concentrated solar flux and cyclic phase transitions” (Project financed by Academy of Sciences of Uzbekistan)

2015-2016 Project manager in Collaborative Project “Joint Solar Research for Uzbekistan” (funded from Federal Ministry of Education and Research (BMBF)– Germany),

2015 – 2017 Project manager in project “Development of the low temperature technology of fabrication of ceramic protecting covers for units of coal fired power plants” (Project financed by Academy of Sciences of Uzbekistan).

2018- Project manager of joint project ARGUS with Rhein-Main applied sciences University, funded from Federal Ministry of Education and Research (BMBF)– Germany and by Academy of Sciences of Uzbekistan

2016-

2017, PIFI program award, №2016VTB064, Supported by China Academy of Science

2019

2018-2019 Project manager in project “Implementation of digital system to heliostat field of the Big Solar Furnace” (Project financed by Uzbekistan Ministry of Innovation Development).

2022-2023 Uzbekistan-Germany (TUD, Dresden) Join project manager, project “Investigation of carbon fiber synteZ technology in Big Solar Furnace” (Project financed by Uzbekistan Ministry of Innovation Development).

Publications:

-Number of papers in refereed journals and patents (Total): 80+ 7

-Number of communications to scientific meetings: 30

Science activity:

New methods of design and sintering of high temperature materials by use of concentrated solar energy. Fundamental studies of the materials behavior on high temperature and solar energy influence.

SELECTED PUBLICATIONS:

1. Shavkat Nurmatov, Hongde Xia and Qian Huang. Multicomponent Heat Storage Nanofluid with Phase Change Behaviour for Solar Power Stations. *Applied Solar Energy*, 2022, Vol. 58, No. 4, pp. 551–558.
2. Urazaeva, E.M., Rumi M.K., Nurmatov, S.R. Irmatova, S.K., Faiziev, S.A., Mansurova, E.P., Zufarov, M.A. Influence of Production Factors on Lightweight Refractory Thermal Conductivity Refractories and Industrial Ceramics, 2021, 62(3), pp. 299–304 (IF=0,451)
3. Rumi, M.K., Nurmatov, S.R., Irmatova, S.K., Faiziev Sh.A., Mansurova, É.P., Zufarov, M.A. Effect of the Type of Carbon-Containing Burnable Additive on the Properties of Lightweight Aluminum-Silicate Thermal Insulation// *Glass and Ceramics*, 2021, 78(5-6), pp. 200–203. (IF=0,708)
4. M.S. Paizullakhanov, Zh.Z. Shermatov, E.Z. Nodirmatov, O.T. Rajamatov, F.N. Ernazarov, M.T. Sulaimanov, Sh. Nurmatov, N.N. Cherenda. Synthesis of materials by concentrated solar radiation// *High Temperature Material Processes* 25(2):17–29 (2021) (<https://www.dl.begellhouse.com>)
5. U.B. Sharopov, K. Kaur, M.K. Kurbanov, D.Sh. Saidov, Sh. R. Nurmatov, M.M. Sharipov, B.E. Egamberdiev // Comparison of electron irradiation on the formation of surface defects in situ and post thin-film LiF/Si(111) deposition // *Thin Solid Films*, 2021, V.735 <https://doi.org/10.1016/j.tsf.2021.138902> Impact Factor - 3,8
6. Akbarov R.Yu., Nurmatov Sh.R. (GLTN-CSP-19-0104) Determining the requirements for the accuracy characteristics of the automated control system for heliostats of a large 1 MW solar furnace, *Applied Solar Energy*, 2020, No. 4.
7. Khujanov, R., Rusche, S., Olimov, M., Nurmatov Sh. Estimates of life-cycle global warming emissions for natural gas generated electricity. Humboldt Kolleg on 'Climate Change and Energy Options' at Aurangabad, Maharashtra during February 02-04(2018).
8. Khujanov R., Gampe U., Dersch Y. Development of a reference concept for a solar-assisted hybrid cycle for the fossil fuel-fired power plant. A Case Study for Syrdaria Thermal Power Plant, Uzbekistan // *International Research Journal of Engineering and Technology (IRJET)*, 2018.-Volume 5. Issue 5.May.
9. Shavkat Nurmatov, Hao Yong , Hongde Xia. Some properties of dowtherm thermal oil nanofluid. International Conference «Fundamental and applied problems of physics», June 13-14, 2017, Tashkent, Uzbekistan.
10. Shavkat Nurmatov, Hao Yong , Hongde Xia. Multi component nanofluid preparation and their some characteristics. International Conference «Fundamental and applied problems of physics», June 13-14, 2017, Tashkent, Uzbekistan.
11. Nurmatov Sh.R., Atabaev IG, Paizulakhanov MS. About the change the characteristics of the band structure of oxide materials at high temperatures. *Journal of High Temperature Thermophysics*, 2016, vol. 54, No. 4, p. 1-7.
12. Sh.Nurmatov, R. Khujanov, U. Gampe. “Reduction of carbon dioxide emissions by solar thermal coupling into existing fossil steam power plants with thermal energy storage

- integration". Humboldt kolleg & the international conference on natural sciences 2014. September 25-28, Indonesia, ISSN 1434-5536, pp.134
13. Nurmatov Sh.R., Atabaev I.G., Gulyamova N.P., Fayziev Sh.A., Khujanov R.A. Prospects for the use of solar power plants in Uzbekistan with thermal storage technologies, Proceedings of International Conference Fundamental and Applied Questions of Physics November 24-25, 2013-Tashkent, 2013, p.175.
 14. Nurmatov Sh.R., Khujanov R.A., Kuchkarov A.A. Use of solar power plants in Uzbekistan with thermal storage technologies. International conference on European Science and technology, October 3-4. 2013, Munich, Germany. Vol. 1, p. 420-422.
 15. Nurmatov Sh.R., Lyubimov A.A., Potapov V.I. Mathematical modeling of thermal processes in the reactor for solar heating to produce silicon carbide. Proceedings of the VII International Scientific-Practical Conference «Dynamika naukowych badan - 2011" Poland. Volume 18, p. 22-23.
 16. Nurmatov Sh.R. et al. Features of synthesis of carbide silicon from a rice peel. Heliotehnika (APPLIED SOLAR ENERGY) 2003, №3 pages 51-56.
 17. Nurmatov Sh.R. et al. Definition of fire resistance of materials. Refractory and technical ceramics, v.7, 2005
 18. Nurmatov Sh.R. et al. Silicon carbide materials received from rice peel on the Big Solar Furnace. Refractory and technical ceramics, v.7, 2005

PATENTS

1. Patent JAP 2008 0292 UZ- Ceramic black covering material (With Fayziev Sh.A., Menosmanova G. S.)
2. Patent JAP 2008 0422 UZ -A method of coloring of ceramic covering products (With Fayziev Sh.A., Menosmanova G. S.)
3. Patent JAP 2009 0015 UZ - A pink color ceramic covering material (With Fayziev Sh.A., Menosmanova G. S.)
4. The patent application JAP 2010 0058 UZ - Optical furnace (With Klichev Sh.I., Abdurakhmanov A.A.)
5. Patent FAP 01639 UZ – Solar Owen (With Atabaev I.G. et.al.)
6. Patent FAP 01830 UZ - Device for fixing and adjusting facet of heliostats (With Atabaev I.G. Pulatov D. et.al.)
7. Patent IAP 05850 UZ - Composition for obtaining a protective coating (For a thermal power station steam boilers) (With Rumi M.K., Fayziev Sh.A., ..et.al)