

Konstantin A. Maslov

Curriculum Vitae

Personal

Born **June 14, 1992**, Apsheronsk, Russia

Citizenship **Russian Federation**

Email **kmaslov@central.uh.edu**

ORCID **0000-0002-4334-1548**

Languages **Russian (native), English (fluent), French (basic)**

Employment

2023–present **University of Houston**, *NP3M postdoctoral fellow*, Houston, USA

2023–2025 **Cyclotron Institute, Texas A&M University**, *Visiting researcher*, College Station, USA

2022–2023 **Central Asian University (former AKFA University)**, *Visiting assistant professor*, Tashkent, Uzbekistan

2021–2022 **Joint Institute for Nuclear Research**, *Research fellow at Bogoliubov Laboratory of Theoretical Physics*, Dubna, Russia

2017–2021 **Joint Institute for Nuclear Research**, *Junior research fellow at Bogoliubov Laboratory of Theoretical Physics*, Dubna, Russia

2015–2018 **National Research Nuclear University "MEPhI" (NRNU "MEPhI")**, *Engineer at Theoretical Nuclear Physics Dept*, Moscow, Russia

Education

2015–2019 **PhD**, *NRNU "MEPhI"*, Moscow

Thesis title: "Equation of state of hadronic matter within relativistic mean-field models with coupling constants and hadron masses dependent on the scalar field"
Thesis advisor: Prof. Dmitry N. Voskresensky.
PhD defence date: 23.09.2020.

2009–2015 **Specialist degree in theoretical physics**, *NRNU "MEPhI"*, Moscow

Thesis advisor: Prof. Dmitry N. Voskresensky.

Scientific interests

Quantum many-body physics of strongly interacting systems

Self-consistent T-matrix approach to strongly interacting quark-gluon plasma

Equation of state of hadronic matter and its applications to neutron stars and heavy-ion collisions

Phase transitions in hot and dense strongly interacting matter

Phenomenological models of quark matter

Training

August 2018 **Helmholtz International Summer School "Matter under Extreme Conditions in Heavy-Ion Collisions and Astrophysics"**, *JINR*, Dubna

May 2017 **International School "Relativistic Heavy Ion Collisions, Cosmology and Dark Matter, Cancer Therapy"**, *Oslo*, Norway

February–March 2017 **53rd Karpacz Winter School of Theoretical Physics and THOR COST Action Training School "Understanding the Origin of Matter from QCD"**, *Karpacz*, Poland

June–July 2016 **ECT* Doctoral Training Program "Nuclear, Neutrino and Relativistic Astrophysics"**, *Trento*, Italy

February 2016 **ITEP International Moscow School of Physics**, *Moscow Region*, Russia

September 2015 **NewCompStar School "Dense Matter in Compact Stars: Experimental and Observational Signatures"**, *Bucharest*, Romania

July 2015 **Helmholtz International Summer School "Dense Matter 2015"**, *JINR*, Dubna

July 2014 **Helmholtz International Summer School "Nuclear Theory and Astrophysical Applications"**, *JINR*, Dubna

Personal presentations

2026 **Talk "A strongly coupled diquark liquid in dense quark matter"**, *2026 Fall Meeting of the APS Division of Nuclear Physics*, Philadelphia, USA

Poster "Neutron star equation of state with isospin-density-dependent couplings", *2026 Fall Meeting of the APS Division of Nuclear Physics*, Philadelphia, USA

Talk "Suppression of Color Superconductivity in Strongly Interacting Dense QGP", *INT Workshop "Finite-Temperature Effects in Multi-Messenger Astrophysics"*, Seattle, USA

2025 **Talk "T-matrix approach to quark-gluon plasma at finite baryon density"**, *INT Workshop "Nuclear Physics in Mergers - Going Beyond the Equation of State"*, Seattle, USA

2024 **Talk "Strongly interacting QGP at finite baryon density in the self-consistent T-matrix approach"**, *2024 Fall Meeting of the APS Division of Nuclear Physics*, Boston, USA

Talk "Self-consistent T-matrix approach to strongly interacting QGP at finite baryon density", *INT Workshop "EOS Measurements with Next-Generation Gravitational-Wave Detectors"*, Seattle, USA

2023 **Poster presentation "PNJL equation of state with off-shell mesonic excitations"**, *XXXth International Conference on Ultra-relativistic Nucleus-Nucleus Collisions "Quark Matter 2023"*, Houston, USA

2022 **Seminar series "Modern problems of neutron star physics"**, *Relativistic astrophysics group seminar at the Ulugh Bek Astronomical Institute*, Tashkent, Uzbekistan

2021 **Invited talks "Neutrino cooling of neutron stars"**, *EuCAPT Astroneutrino Theory Workshop*, IEAP CTU, Prague, Czech Republic

Talk "Effects of Landau damping in the pion channel on the PNJL equation of state", *Theoretical physics group seminar at the University of Wroclaw*, Wroclaw, Poland

2020 **Talk "Equation of state of neutron star matter in relativistic mean-field model with in-medium effects"**, *Seminar of the Relativistic astrophysics sector*, Sternberg Astronomical Institute, Moscow, Russia

Talk "Pasta phase in hybrid hadron-quark stars", *XXXII International (ONLINE) Workshop on High Energy Physics "Hot problems of Strong Interactions"*, Logunov Institute for High Energy Physics of National Research Centre "Kurchatov Institute", Protvino, Moscow region, Russia

2019 **Talk "Relativistic mean-field models of neutron-star matter and nuclear liquid-gas phase transition"**, *International workshop "Infinite and Finite Nuclear Matter"*, JINR, Dubna, Russia

2018 **Talk "Model dependence of the pasta-structure effects in the quark-hadron mixed phase"**, *YITP long-term workshop "New Frontiers in QCD 2018"*, Kyoto, Japan

Talk "Nuclear liquid-gas phase transition in realistic models of neutron star matter", *II International Workshop on Simulations of HIC for NICA energies*, JINR, Dubna, Russia

2017 **Talk "Charged ρ-meson condensate in neutron stars within RMF models"**, *International conference "The Modern Physics of Compact Stars and Relativistic Gravity"*, Yerevan, Armenia

Talk "Δ-resonances and charged ρ-meson condensate in neutron stars", *Workshop "Nuclear, Particle physics and Cosmology"*, Oslo, Norway

Talk "Delta resonances and charged ρ-meson condensation in RMF models with scaled hadron masses and couplings", *International Mini-Workshop on Simulations of HIC for NICA energies*, JINR, Dubna

Poster presentation "Charged ρ meson condensation in neutron stars within RMF models with scaled hadron masses and couplings", *53rd Karpacz Winter School of Theoretical Physics*, Karpacz, Poland

2016 **Talk "The effect of inclusion of Δ resonances in relativistic mean-field model with scaled hadron masses and coupling constants"**, *The 2nd International Conference on Particle Physics and Astrophysics*, Moscow, Russia

Talk "A method of stiffening the relativistic mean-field (RMF) equation of state and its application to the hyperon puzzle", *ECT* Doctoral Training Program "Nuclear, Neutrino and Relativistic Astrophysics"*, Trento, Italy

Talk "Hyperons and maximum neutron star mass within a Relativistic Mean-Field model", *ITEP International School of Physics*, Moscow, Russia

2015 **Poster presentation "Solution of the hyperon puzzle within a Relativistic Mean-field model"**, *NewCompStar School "Dense Matter in Compact Stars: Experimental and Observational Signatures"*, Bucharest, Romania

Poster presentation "Making a soft hadronic equation of state hard within RMF models", *Strangeness in Quark Matter conference*, JINR, Dubna

Grants

2017–2021 **BASIS foundation PhD student's personal grant**

2017–2019 **Russian Science Foundation grant 17-12-01427**

2016–2017 **Russian Foundation for Basic Research grant 16-00-00023**

November 2015 **COST Action MP1304 "NewCompStar" STSM grant**, *Matej Bel University*, Slovakia, Project with Dr. E. E. Kolomeitsev "Neutron star composition including higher SU(3) multiplets"

Teaching experience

2022–2023 **Lecturer: University Physics**, *Central Asian University*, Tashkent, Uzbekistan

2022–2023 **Lecturer: Biophysics I & II**, *Central Asian University*, Tashkent, Uzbekistan

2016–2018 **TA: Modern problems of nuclear physics**, *NRNU MEPhI*, Moscow
Advanced course for MSc students at the theoretical nuclear physics department of NRNU MEPhI by Prof. D. Blaschke, Prof. G. Roepke and Prof. A. Sedrakian.

2015–2016 **TA: Quantum mechanics, 2-semester course**, *NRNU MEPhI*, Moscow

2017 **TA: Classical mechanics**, *NRNU MEPhI*, Moscow

Publications

h-index 10 (INSPIRE-HEP, October 2026)

2026 **[23] An extended chiral mean-field model with medium-modified thermal mesons for hot and dense hadronic matter**, *M. Kahangirwe, R. Kumar, J. Grefa, K. Maslov, Y. Wang, A. Kumar, C. Ratti, V. Dexheimer*
arXiv:2609.17473

[22] Strongly coupled quark matter in neutron stars and their mergers, *K. Maslov, R. Rapp, J. Grefa, V. Dexheimer, C. Ratti*
arXiv:2608.28879, under peer review at Nature Communications

[21] S-wave kaon condensation in neutron-star matter within a chiral model framework with dynamical meson masses, *Y. Wang, R. Kumar, J. Grefa, K. Maslov, C. Ratti, R. Negreiros, V. Dexheimer*
arXiv:2603.22164

[20] Relativistic mean-field model with density- and isospin-density-dependent couplings, *G. Frohaug, K. Maslov, V. Dexheimer, J. Grefa, J. Jahan, C. Ratti, T.E. Restrepo*
Phys.Rev.D 113 (2026) 123049

2025 **[19] Interacting mesons as degrees of freedom in a chiral model**, *R. Kumar, J. Grefa, K. Maslov, Y. Wang, A. Kumar, R. Rapp, C. Ratti, V. Dexheimer*
Phys.Rev.D 111 (2025) 074029

2023 **[18] Effect of mesonic off-shell correlations in the PNJL equation of state**, *K. Maslov, D. Blaschke*
Phys.Rev.D 107 (2023) 094010

2022 **[17] Confining density functional approach for color superconducting quark matter and mesonic correlations**, *O. Ivanytskyi, D. Blaschke, K. Maslov*
EPJ Web Conf. 258 (2022) 07008

2019 **[16] Hybrid equation of state with pasta phases and third family of compact stars**, *K. Maslov, N. Yasutake, A. Ayriyan, D. Blaschke, H. Grigorian, T. Maruyama, T. Tatsumi, D.N. Voskresensky*
Phys.Rev.C 100 (2019) 025802

[15] Quark-hadron pasta in neutron stars, *N. Yasutake, K. Maslov, A. Ayriyan, H. Grigorian, D. Blaschke, D.N. Voskresensky, T. Maruyama, T. Tatsumi*
AIP Conf.Proc. 2127 (2019) 020028

[14] RMF models with σ-scaled hadron masses and couplings for the description of heavy-ion collisions below 2A GeV, *K.A. Maslov, D.N. Voskresensky*
Eur.Phys.J.A 55 (2019) 100

2018 **[13] Cooling of neutron stars in "nuclear medium cooling scenario" with stiff equation of state including hyperons**, *H. Grigorian, D.N. Voskresensky, K.A. Maslov*
Nucl.Phys.A 980 (2018) 105

[12] On Cooling of Neutron Stars with a Stiff Equation of State Including Hyperons, *H. Grigorian, E.E. Kolomeitsev, K.A. Maslov, D.N. Voskresensky*
Universe 4 (2018) 29

[11] Robustness of third family solutions for hybrid stars against mixed phase effects, *A. Ayriyan, N.-U. Bastian, D. Blaschke, H. Grigorian, K. Maslov, D.N. Voskresensky*
Phys.Rev.C 97 (2018) 045802

[10] Charged ρ-meson condensation in neutron stars, *E.E. Kolomeitsev, K.A. Maslov, D.N. Voskresensky*
Nucl.Phys.A 970 (2018) 291

2017 **[9] Charged ρ Meson Condensate in Neutron Stars within RMF Models**, *K.A. Maslov, E.E. Kolomeitsev, D.N. Voskresensky*
Universe 4 (2017) 1

[8] Δ resonances and charged ρ mesons in neutron stars, *K.A. Maslov, E.E. Kolomeitsev, D.N. Voskresensky*
J.Phys.Conf.Ser. 932 (2017) 012040

[7] Hyperons, Δ resonances and condensate of charged ρ mesons within relativistic mean-field models with scaled hadron masses and couplings, *K.A. Maslov, E.E. Kolomeitsev, D.N. Voskresensky*
J.Phys.Conf.Ser. 941 (2017) 012053

[6] The effect of inclusion of Δ resonances in relativistic mean-field model with scaled hadron masses and coupling constants, *K.A. Maslov, E.E. Kolomeitsev, D.N. Voskresensky*
J.Phys.Conf.Ser. 798 (2017) 012070

[5] Delta isobars in relativistic mean-field models with σ-scaled hadron masses and couplings, *E.E. Kolomeitsev, K.A. Maslov, D.N. Voskresensky*
Nucl.Phys.A 961 (2017) 106

2016 **[4] Relativistic Mean-Field Models with Scaled Hadron Masses and Couplings: Hyperons and Maximum Neutron Star Mass**, *K.A. Maslov, E.E. Kolomeitsev, D.N. Voskresensky*
Nucl.Phys.A 950 (2016) 64

[3] Hyperon puzzle and the RMF model with scaled hadron masses and coupling constants, *E.E. Kolomeitsev, K.A. Maslov, D.N. Voskresensky*
J.Phys.Conf.Ser. 668 (2016) 012064

2015 **[2] Making a soft relativistic mean-field equation of state stiffer at high density**, *K.A. Maslov, E.E. Kolomeitsev, D.N. Voskresensky*
Phys.Rev.C 92 (2015) 052801

[1] Solution of the Hyperon Puzzle within a Relativistic Mean-Field Model, *K.A. Maslov, E.E. Kolomeitsev, D.N. Voskresensky*
Phys.Lett.B 748 (2015) 369