

Curriculum Vitae

Oleg Stepanyuk

e-mail: stepanyuk.oleg@aol.com

Birth Date: 04/28/83

Languages:

English Full professional proficiency
EFSET - 92/100
(C2 - Proficient)

Russian Native or bilingual
proficiency

**Bulgarian,
Macedonian** Basic knowledge



Education:

2000—2006

MSU (Lomonosov Moscow State University), Faculty of Physics, Division of Geophysics and Earth Sciences, Shirshov Institute of Oceanology (RAS).

MSc thesis: «The Red Sea, Tajura Rift (Guilf of Aden): Comparative study of an anomalous magnetic field and magnetization of the samples» (2006)

2008—2010

MSU (Lomonosov Moscow State University), Faculty of Physics. Martin-Luther Universität Halle-Wittenberg

PhD thesis: «Numerical simulation of growth scenario, selforganization and physical properties of low dimensional structures» (2010)

2014—2016

University of Helsinki, Finland. Second PhD studies program in Climate Sciences and Meteorology.

Education – additional:

2015

Espoo, Finland. CSC Summer School in High Performance Computing Lectures and hands-on training on parallel programming, message passing(MPI), threading (OpenMP), code optimization and other necessary skills in development of parallel scientific software.

2009

Moscow, Russia. PSM Consulting CIS

Project management basics training according to PMI project management standard (PMBOK guide).

Work experience:

2019— present. Kolabtree (and similar platforms). Independent expert (5/5 project rating)

2017— present. iAthena7 Labs. R&D Senior Adviser, Software Architect, Interim CEO (2019)

2014—2016. University of Helsinki, Department of Meteorology Research Scientist



2013—2016. Dorodnicyn Computing Center of Russian Academy of Sciences Research Scientist

2008—2014. MSU (Lomonosov Moscow State University), Faculty of Physics. Research Scientist

2008—2013. Martin-Luther Universität Halle-Wittenberg, Max-Planck Institute for Microstructure Physics. Germany
Visiting Research Fellow

2010—2011. Kintech Lab
Research scientist. Scientific Software Developer

2006—2008. Roy International Consultancy Inc. IT and Software Expert in Geophysics Department

2000—2002. Independent Software Developer

General Areas:

Scientific Software Development, Big Data Problems, Satellite Data Analysis, Remote Sensing, Image Processing, Parallel Computing, Stochastic Models, Numerical Simulation of Physical and Chemical Processes

Various Technical Skills, Approaches, Software:

Systems, Architectures, Languages, Technologies:

High Performance Computing, Parallel Programming (MPI, OpenMP over Linux on Clusters and Supercomputers), GPU, CUDA, C/C++ , Matlab, Python, Java Script, Embarcadero Rad Studio, Firemonkey cross-platform framework, SQL

Atmospheric modeling and tools, GIS, Geomatics:

ECMWF Open IFS model, knowledge of the source code and undocumented features. WRF, WRF-Chem models. CDO, ECMWF MetView, Panoply. GRIB and NetCDF formats, ArcGIS. Western Geco Omega (administration)

Various modeling, dynamic and stochastic computational approaches, software:

Molecular dynamics, Kinetic Monte-Carlo, Perceptron Neural Networks, Pseudopotentials, DFT, VASP, LAMMPS, Material Studio

Awards:

Stepanyuk O.V., Negulyaev N.N, Ignatiev P.A., Hergert W., Saletsky A.M.
«Unusual growth mechanism of atomic structures on fcc(110)»
Proceedings of the European Conference on Surface Science (ECOSS 27),
Groningen, Netherlands , 2010 - Best Poster Award

Publication list:

1. Mammarella I., Gavrylenko G., Zdrovennova G., Ojala A. K., Erkkilä K-M., Zdrovennov R., Stepanyuk O., Palshin N., Terzhevik A., Vesala T. V. , Heiskanen J.
«Effects of similar weather patterns on the thermal stratification, mixing regimes and hypolimnetic oxygen depletion in two boreal lakes with different water transparency» Boreal Environment Research 23:237–247 (2018)

2. Rantanen M, Räisänen J., Lento J., Stepanyuk O., Rätty O., Sinclair V., Järvinen H.
«OZO v.1.0: Software for solving a generalized omega equation and the ZwackOkossi height tendency equation using WRF model output». Geosci. Model Dev., 10, 827-841, (2017)

3. Stepanyuk O.V., Räisänen J., Sinclair V., Järvinen H.
«Factors affecting atmospheric vertical motions as analyzed with a Generalized Omega Equation and the OpenIFS model». *Tellus A*. Vol. 69, Issue 1 (2017)
4. Polyakov O.P., Korobova J.G., Bazhanov D.I., Stepanyuk O.V.
«Impact of Surface Strain on the Spin Dynamics of Deposited Co Nanowires». *J. Appl. Phys.* Vol. 121, Issue 1 (2017)
5. Bazhanov D.I., Stepanyuk O.V., Farberovich O.V., Stepanyuk V.S.
«Classical and quantum aspects of spin interaction in 3d chains on a Cu₃N-Cu(110) molecular network». *Phys. Rev. B*. 93, 035444 (2016)
6. Ruiz-Díaz P., Stepanyuk O.V., Stepanyuk V.S.
«Effects of Interatomic Coupling on Magnetic Anisotropy and Order of Spins on Metallic Surfaces». *J. Phys. Chem. C*, 2015, 119 (46), 26237 (2015)
7. Ruiz-Díaz P., Stepanyuk O.V.
«Effects of exchange interactions on magnetic anisotropy and spin-dynamics of adatoms on metallic surfaces» arXiv: 1502.03743v2 (2015)
8. Polyakov O.P., Stepanyuk O.V., Saletsky A.M., Stepanyuk V.S.
«Electronic and magnetic properties at the edges of nanostructures in an electric field: Ab initio study» *J. Phys: Condens. Matter.*, Vol. 26, 44 (2014)
9. Stepanyuk O.V.
«Comment on Study of the interaction of a palladium nanocontact with a hydrogen molecule». *JETP Letters* 10, 96(3) (2012)
10. Polyakov O.P., Corbetta M., Stepanyuk O.V., Oka H., Saletsky A.M., Sander D., Stepanyuk V.S., Kirschner J.
«Spin-Dependent Smoluchowski effect» *Phys. Rev. B* 86, 235409 (2012)
11. Stepanyuk O.V., Ignatiev P.A., Negulyaev N.N., Saletsky A.M., Hergert W.
«Magnetic properties of Pd atomic chains formed during a submonolayer deposition of 3d metals on Pd(110)» *J. Phys. Condens. Matter* 24, 235 (2012)
12. Mutigullin I.V., Abgaryan K.K., Bazhanov D.I., Stepanyuk O.V.,
«Ab Initio study of structural and electronic properties of InN/Si and GaN/Si Interfaces». *World Journal Of Engineering, ICCE-19 SHANGHAI conference Paper* (2011)
13. Negulyaev N.N., Stepanyuk O.V., Niebergall L., Saletsky A.M.
«Kinetic Monte Carlo study of self-organization of low-dimensional nanostructures on fcc(110) surfaces» *Phys. Status Solidi B* 247, No. 5, 1039–1047 (2010)
14. Stepanyuk O.V., Alexeev D.B., Saletskii A.M.,
«Calculation of the thermodynamic properties of copper by molecular dynamics simulation» *Moscow University physics bulletin*, Vol 63, No. 2, 226 (2009)
15. Stepanyuk O.V., Negulyaev N.N., Ignatiev P.A., Przybylski M., Hergert W., Saletsky A.M.
«Intermixing-driven scenario for the growth of nanowires on (110) metal surfaces». *Phys. Rev. B*, Vol. 79, 155410 (2009)
16. Alexeev D.B., Saletskii A.M., Stepanyuk O.V.
«Melting of copper nanoclusters on a (100) copper surface». *Moscow University physics bulletin*, Vol 63., No. 2, 137 (2008)
17. Stepanyuk O.V., Negulyaev N.N., Saletsky A.M., Hergert W.
«Growth of Co nanostructures on Cu(110): Atomic-scale simulations». *Phys. Rev. B* 78, 113406 (2008)

Presentation list:

1. Stepanyuk O.V.
«Data-Driven Approaches in Geosciences.» Invited talk, Sofia University, Faculty of Geology and Geography, 2018. Sofia, Bulgaria
2. Stepanyuk O.V., Räisänen J., Sinclair V., Järvinen H.
«Factors affecting atmospheric vertical motions as analyzed with a generalized omega equation and OpenIFS model: a statistical study». EMS Annual Meeting, 2016, Trieste, Italy
3. Stepanyuk O.V., Räisänen J.
«Factors affecting atmospheric vertical motions as analyzed with a generalized omega equation and Open IFS model». EMS Annual Meeting, 2015, Sofia, Bulgaria
4. Stepanyuk O.V., Bazhanov D.I.
«Spin dynamics and quantum states in 3d atomic chains on Cu₃N-Cu(110) molecular network». APS March Meeting 2014, Denver, CO, USA
5. Stepanyuk O.V., Corbetta M., Polyakov O.P., Oka H., Sander D., Stepanyuk V., Kirchner J.
«Spin-dependent Smoluchowski effect». APS March meeting 2013, Baltimore, MD, USA
6. Stepanyuk O.V., Polyakov O.P., Saletsky A.M. and Hergert W.
«Spin polarized surface states on stepped magnetic surfaces: ab-initio approach». APS March meeting 2012, Boston, Massachusetts
7. Stepanyuk O.V., Negulyaev N.N, Ignatiev P.A., Hergert W., Saletsky A.M.
«Unusual growth mechanism of atomic structures on fcc(110)». Proceedings of the European Conference on Surface Science (ECOSS 27), Groningen, Netherlands, 2010
8. Negulyaev N.N., Stepanyuk O.V., Hergert W., Saletsky A.M and Kirschner J.
«Surprising growth of atomic-scale nanostructures on fcc(110) metal surfaces». September 13, 2010. CECAM-HQ-EPFL, Lausanne, Switzerland
9. Stepanyuk O.V., Negulyaev N.N., Ignatiev P.A, Przybylski M., Hergert W., Saletsky A.M.
«Kinetic Monte Carlo study of growth of Co on Cu(110) at room temperature» New Journal of Physics. DPG Spring Meeting 2009, condensed matter section 0 42.79. Germany, Dresden, March 22-27 2009
10. Stepanyuk O.V., Negulyaev N.N., Ignatiev P.A., Hergert W., Saletsky A.M., Kirschner J.
«Novel mechanism of growth of atomic wires on(110) surfaces driven by intermixing» New Journal of Physics. DPG Spring Meeting 2009, condensed matter section 0 56.9. Germany, Dresden, March 22-27 2009
11. Stepanyuk O.V., Negulyaev N.N. , Hergert W., Saletsky A.M.
«Growth of Co Nanostructures on Cu(110): Atomic Scale Simulations» Moscow International Symposium on Magnetism - 2008. p. 339