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VISITING POSITIONS

**2023, visiting professor (Nanjing University of Information Science and Technology,
Nanjing, China)**

2015, 2017, visiting professor (Xi'an JiaoTong University, Xi'an, China)

2014, visiting professor (Galilei Institute for Theoretical Physics, Florence, Italy)

2006, visiting researcher at the Courant Institute of Mathematical Sciences, New York University (New York, USA),

2003, visiting researcher at the Institute for Pure and Applied Mathematics, University of California, Los Angeles (Los Angeles, USA)

2001, visiting researcher at the Courant Institute of Mathematical Sciences, New York University (New York, USA)

1987, visiting researcher at the P. Lebedev Physical Institute of the USSR Academy of Sciences (Moscow, USSR)

RESEARCH FIELDS

Physics of the ocean and atmosphere, nonlinear mechanics, hydrodynamics, underwater acoustics, quantum and atom optics

RESEARCH INTERESTS

Nonlinear dynamical processes, Hamiltonian and dissipative chaos, self-organization, dynamical symmetries

PUBLICATIONS

Prof. Sergey Prants entered the top 2% of the most cited scientists in the world by number of citations in Scopus (2023)

<https://elsevier.digitalcommonsdata.com/datasets/btchxktzyw/6> with the total number of citations around 2000 in the Web of Science core collection database (<https://access.clarivate.com>) and around 2600 in the RSCI database (<https://elibrary.ru/authors.asp>) on Oct 1, 2023.

Web of Science Hirsch index is 29 and 32 (RSCI).

AWARDS

1995 – Forum award from the Prezidium of the Far-Eastern Branch of the Russian Academy of Sciences

2006 - U. Kopvillem Prize in Theoretical Physics from the Far-Eastern Branch of the Russian Academy of Sciences

2014 - Zaslavsky award in the field of nonlinear science and complexity

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MEMBER of EDITORIAL BOARDS of SCIENTIFIC JOURNALS

- Communications in Nonlinear Science and Numerical Simulations (Web of Science core collection, Elsevier, Amsterdam), associated editor from 2009 to 2014.
- Journal of Russian Laser Research (Web of Science core collection, Springer, Berlin), the present time.
- Journal of Environmental Accounting and Management (Web of Science core collection, L& H Scientific Publishing, USA), the present time.
- Transactions of Nonlinear Science and Complexity (World Scientific, Singapore), the present time.

- Russian Journal of Nonlinear Dynamics (Web of Science RSCI, Inst. Computer Sciences, Russia), present time.
- Vestnik of the Far Eastern Branch of the Russian Academy of Sciences (Russian Academy of Sciences, Russia), the present time.
- Nonlinear Physical Science (Springer, Berlin), the present time.

1985

1. U. Kopvillem, S. V. Prants. Polarisation Echo. Nauka: Moscow, 1985, 192 p. (in Russian)

1986

1. S.V. Prants. An algebraic approach to quadratic parametric processes. Journal of Physics A. V. 19 (1986) 3457-3462. [doi: 10.1088/0305-4470/19/17/012](https://doi.org/10.1088/0305-4470/19/17/012)

1988

1. S. V. Prants. Quantum dynamical theory of a Fermi resonance and subpicosecond spectroscopy of coupled modes. Journal of Physics B. V. 21 (1988) 397-401.

1990

1. S.V. Prants. Lie algebraic solutions of Bloch equations with time-dependent coefficients. Physics Letters A. V. 144 (1990) 225-228. [doi:10.1016/0375-9601\(90\)90925-E](https://doi.org/10.1016/0375-9601(90)90925-E)

2. S.V. Prants, L.S. Yacoupova. Analytic solutions to the Bloch equations for amplitude-and frequency-modulated fields. Soviet Physics JETP V. 70 (1990) 639-644 [ZHETP . V. 97 (1990) 1140-1150]. [DOI 0038-5646/90/040639-06](https://doi.org/10.1016/0038-5646(90)040639-06)

3. S.V. Prants. Parametric amplification and frequency conversion with time-dependent pump amplitude and phase. Optics Communications. V. 78 (1990) 271-273. (Correction, ibid. V. 83 (1991) 390). [doi:10.1016/0030-4018\(90\)90359-2](https://doi.org/10.1016/0030-4018(90)90359-2)

4. S. V. Prants, L. S. Yacoupova. Temporal evolution of a 3-level atom in the field of laser pulses. Optics and Spectroscopy (USSR). V. 69 (1990) 570-576 [Optika i spektroskopiya. V. 69 (1990) 964-970].

1991

1. S.V. Prants. Quantum dynamics of atoms in modulated laser fields. Journal of Russian Laser Research. V. 12 (1991) 165-195. [DOI:10.1007/BF01126636](https://doi.org/10.1007/BF01126636)

1992

1. S. V. Prants, L. S. Yacoupova. The Jaynes-Cummings model with modulated field-atom coupling in resonator quantum electrodynamics. Journal of Modern Optics. V. 39 (1992) 961-971. [DOI: 10.1080/09500349214550991](https://doi.org/10.1080/09500349214550991)

2. U. Kopvillem, S. V. Prants, V. V. Samartsev et al. Polarisation Echo and its Applications. Nauka: Moscow, 1992, 220 p. (in Russian)

1993

1. S.V. Prants. Nonadiabatic neutrino oscillations in inhomogeneous media. Soviet Physics JETP. V. 77 (1993) 176-180 [ZhETP. V. 104 (1993) 2590-2598]. [DOI 1063-7761/93/080176-06](https://doi.org/10.1063-7761/93/080176-06)
2. S.V. Prants. Lie-group treatment for two- and three-neutrino oscillations in matter with arbitrary density variations. Modern Physics Letters A. V. 8 (1993) 2671-2678. [DOI: 10.1142/S0217732393003056](https://doi.org/10.1142/S0217732393003056)

1994

1. S.V. Prants. Nonadiabatic population transfer in driven four-level systems. Optics and Spectroscopy (USSR). V. 77 (1994) 155-159. [Optika i Spektroskopiya. V. 76 (1994) 173-177].
2. S. V. Prants. Dynamics of a multilevel atom in a polychromatic modulated laser field. Izvestiya of the Russian Academy of Sciences. Ser. Fiz. V. 58 (1994) 30-35.
3. S. V. Prants, L. E. Kon'kov. Quantum ergodicity of an excited two-level atom. Bulletin of the Russian Academy of Sciences. Physics. Supplement Physics of Vibrations. V. 58 (1994) 57-62.

1995

1. S.V. Prants. Controlling atom-field dynamics. Journal of Russian Laser Research. V. 16 (1995) 83-97. [DOI 10.1007/BF02581077](https://doi.org/10.1007/BF02581077)

1996

1. L.E. Kon'kov, S.V. Prants. Dynamical chaos in the group-theoretical structure. Journal of Mathematical Physics. V. 37 (1996) 1204-1217. [doi:10.1063/1.531439](https://doi.org/10.1063/1.531439)
2. S.V. Prants. Population locking in nonstationary two- and tri-photon resonances. Optics communications. V. 125 (1996) 222-225. [doi:10.1016/0030-4018\(96\)00029-6](https://doi.org/10.1016/0030-4018(96)00029-6)
3. S.V. Prants. Dynamical complexity of driven two-level systems. I. External driving by a prescribed laser field. Journal of Russian Laser Research. V. 17 (1996) 539-550. [DOI 10.1007/BF02090635](https://doi.org/10.1007/BF02090635)
4. S. V. Prants. Finite control of the populations of quantum systems on their dynamic groups. Automation and Remote Control. V. 57 (1996) 204-211. [Automatica i Telemekhanika. No 2. (1996) 66-75].

1997

1. S.V. Prants. Dynamical complexity of driven two-level systems. II. Dynamical driving by a self-consistent radiation field. Journal of Russian Laser Research. V.18 (1997) 69-86. [DOI 10.1007/BF02558669](https://doi.org/10.1007/BF02558669)
2. S.V. Prants. Coherent transient effects of population locking and population transfer in three-level media. Optics and Spectroscopy. V. 83 (1997) 23-27 [Optika i Spektroskopiya. V. 83 (1997) 23-27].
3. L.E. Kon'kov, S.V. Prants. Chaotic Rabi vacuum oscillations in cavity quantum electrodynamics. JETP Letters. V. 65 (1997) 833-838. [Pis'ma ZhETP . V. 65 (1997) 801-806]. [DOI 10.1134/1.567433](https://doi.org/10.1134/1.567433)

4. V. P. Karassiov, L. E. Kon'kov, S. V. Prants. Two semiclassical Dicke models: between regularity and chaos. Bulletin of the Lebedev Physics Institute. No 5-6 (1997) 25-32.

1998

1. S.V. Prants, L.E. Kon'kov and E.V. Dmitrieva. Semiclassical chaotic dynamics of cavity polaritons in semiconductor microcavities. Physics Letters A. V. 237 (1998) 283-291. [doi:10.1016/S0375-9601\(97\)00875-X](https://doi.org/10.1016/S0375-9601(97)00875-X)

1999

1. S.V. Prants, L.E. Kon'kov. Parametric instability and Hamiltonian chaos in semiclassical electrodynamics. J. Exp. Theor. Phys. V. 88 (1999) 406-414 [ZhETP. V. 115 (1999) 740-753]. [DOI: 10.1134/1.558810](https://doi.org/10.1134/1.558810)

2. S.V. Prants, L.E. Kon'kov, I.L. Kiriluyk. Semiclassical interaction of moving atoms with a field: from integrability to Hamiltonian chaos. Physical Review E. V. 60 (1999) P.335-346. [DOI: 10.1103/PhysRevE.60.335](https://doi.org/10.1103/PhysRevE.60.335)

3. I. L. Kiriluyk, L. E. Kon'kov, S. V. Prants. Dynamical complexity in a quantum-optical model with a simple Lie-algebraic structure. Reports on Mathematical Physics. V. 43 (1999) 195-205.

2000

1. S. V. Prants. Intermittency and dynamical chaos. Physical Review E. V. 61 N2 (2000) P.1386-1389. [DOI: 10.1103/PhysRevE.61.1386](https://doi.org/10.1103/PhysRevE.61.1386)

2. S. V. Prants and L. E. Kon'kov. Homoclinic chaos in vacuum Rabi oscillations. Physical

Review E. V.61 N4 (2000) P.3632-3640. [DOI: 10.1103/PhysRevE.61.3632](https://doi.org/10.1103/PhysRevE.61.3632)

3. S.V. Prants and V.I. Yousoupov. Structural chaos in reversible spontaneous emission from moving atoms. Quantum Electronics. V.30 N7 (2000) 647-652 [Kvantovaya Electronica. V.30. N7 (2000) 647-652]. [doi: 10.1070/QE2000v030n07ABEH001783](https://doi.org/10.1070/QE2000v030n07ABEH001783)

4. I.L. Kirilyuk and S.V. Prants. A mechanism of arising of Hamiltonian chaos in the basic model of optics. Optics and Spectroscopy. V.89 N6 (2000) 978-983 [Optika i Spektroskopiya. V.89 N6 (2000) 978-983]. [DOI 10.1134/1.1335042](https://doi.org/10.1134/1.1335042)

5. V.Yu.Sirotkin and S. V. Prants. Dynamics of interaction between internal and external degrees of freedom of an atom in the resonance standing-wave light field. Journal of Russian Laser Research. V.21 N6 (2000) 585-602.

6. S. V. Prants and L. E. Kon'kov. Hamiltonian chaos in the interaction of two-level moving atoms with cavity vacuum. Chaos, Solitons and Fractals. V.11 (2000) 871-877.

2001

1. M.Yu.Uleysky and S. V. Prants. A nonlinear oscillator with two degrees of freedom in a laser field. Journal of Russian Laser Research. V.22 N1 (2001) P.69-81. [DOI 10.1023/A:1009503712423](https://doi.org/10.1023/A:1009503712423)

2. S.V. Prants. Structures and chaos in parametric Rabi oscillations. Optics and Spectroscopy. V.90 N5 (2001) 701-706. [Optika i Spektroskopiya. V.90 N5 (2001) 794-799]. [DOI 10.1134/1.1374658](https://doi.org/10.1134/1.1374658)

3. S.V. Prants and L.E. Kon'kov. Chaotic motion of atom in the coherent field of a standing light wave. JETP Letters. V.73 N4 (2001) 180-183. [Pis'ma ZhETP . V.73 N4 (2001) 200-204]. [DOI 10.1134/1.1368710](https://doi.org/10.1134/1.1368710)

4. V.I.Ioussoupov, L. E. Kon'kov, S. V. Prants. Structural Hamiltonian chaos in the coherent parametric interaction. Physica D. V.155 N3/4 (2001) P.311-322. [DOI: 10.1016/S0167-2789\(01\)00264-0](https://doi.org/10.1016/S0167-2789(01)00264-0)

5. S.V. Prants and V.Yu. Sirotkin. Effects of the Rabi oscillations on the atomic motion in a standing-wave cavity. Physical Review A. V.64 (2001) art. no. 033412. [DOI: 10.1103/PhysRevA.64.033412](https://doi.org/10.1103/PhysRevA.64.033412)

6. M. V. Budyansky and S.V. Prants. Universal mechanism of chaotic mixing in an elementary deterministic flow. J. Tech. Phys. Letters. V.27 N6 2001 508-510. [Pis'ma ZhETP ZhTP. V.27 N12 2001 51-56].

2002

1. S.V. Prants. Interaction of nonlinear resonances in cavity quantum electrodynamics. JETP Letters. V.75 N2 2002 63-65 [Pis'ma ZhETP . V.75. Is.2 2002 71-73]. [DOI 10.1134/1.1466477](https://doi.org/10.1134/1.1466477)

2. S.V. Prants. Chaos, fractals and flights of atoms in cavities. JETP Letters. V.75 N12 2002 651-658 [Pis'ma ZhETP . V.75. Is.12 2002 777-785]. [DOI 10.1134/1.1503331](https://doi.org/10.1134/1.1503331)

3. S.V. Prants, M. Edelmam and G.M. Zaslavsky. Chaos and flights in the atom-photon interaction in cavity QED. Physical Review E. V.66 (2002) art. no 046222. [DOI: 10.1103/PhysRevE.66.046222](https://doi.org/10.1103/PhysRevE.66.046222)

4. M.V. Budyansky, S.V. Prants, M.Yu. Uleysky. Fractals and dynamical traps in a simplest model of chaotic advection with a topographic vortex. Doklady Earth Sciences V.387 N8 2002 929-932 [Dokl. Akad. Nauk. V.386 N5 2002 686-689].

5. D.V.Makarov, S. V. Prants and M.Yu.Uleysky. Structure of spatial nonlinear resonance of rays in an inhomogeneous underwater sound channel. DAN Earth Science. V. 382 N1 2002 106-108 [Dokl. Akad. Nauk. V.382 N3 2002 394-396].

2003

1. V.Yu. Argonov, S.V. Prants. Fractals and chaotic scattering of atoms in the field of a stationary standing light wave. J. Exp. Theor. Phys. V.123 N5 (2003) 832-845 [ZhETP. V.123 N5 (2003) 946-961]. [DOI: 10.1134/1.1581937](https://doi.org/10.1134/1.1581937)

2. S.V. Prants, M.Yu. Uleysky. Atomic fractals in cavity quantum electrodynamics. Physics Letters A. V. 309 N5-6 (2003) P.357-362. [DOI:10.1016/S0375-9601\(03\)00208-1](https://doi.org/10.1016/S0375-9601(03)00208-1)

3. M. Uleysky, L. Kon'kov, S. Prants. Quantum chaos and fractals with atoms in cavities. Communications in Nonlinear Science and Numerical Simulation. V.8 N3/4 (2003) 329-347.

2004

1. V.Yu. Argonov, S.V. Prants. Synchronization and bifurcations of internal and external degrees of freedom of an atom in a standing light wave. JETP Letters. V.80 N4 (2004) 231-235. [Pis'ma ZhETP . V.80. Is.4 (2004) 260-264]. [DOI: 10.1134/1.1813677](https://doi.org/10.1134/1.1813677)

2. [M. Budyansky, M. Uleysky, S. Prants. Hamiltonian fractals and chaotic scattering by a topographical vortex and an alternating current. Physica D 195 \(2004\) P.369-378. doi:10.1016/j.physd.2003.11.013](#)

3. M.V. Budyansky, M.Yu. Uleysky, S.V. Prants. Chaotic scattering, transport, and fractals in a simple hydrodynamic flow. J. Exp. Theor. Phys. V.99 N5 (2004) 1018-1027. [ZhETP. V.126 N5(11) (2004) 1167-1179] [DOI: 10.1134/1.1842883](https://doi.org/10.1134/1.1842883)

4. [D.V. Makarov, M.Yu. Uleysky, S.V. Prants. Ray chaos and ray clustering in an ocean waveguide. Chaos. V.14. N1 \(2004\) P.79-95. DOI:10.1063/1.1626392](#)

5. Nonlinear Dynamical Processes (edited by S.V. Prants). Dalnauka: Vladivostok, 2004, 260 p. (in Russian).

2005

1. [V.Yu. Argonov and S.V. Prants. Synchronization of internal and external degrees of freedom of atoms in a standing laser wave. Physical Review. A. V.71 \(2005\) art. N 053408. DOI: 10.1103/PhysRevA.71.053408](#)

2. S.V. Prants and M.Yu. Uleysky. Quantum stability in cavity QED. JETP Letters. V.82 N12 (2005) [Pis'ma ZhETP . V.82. Is.12 (2005) 846-851]. DOI: 10.1134/1.2175242

2006

1. [S.V. Prants, M.Yu. Uleysky, and V.Yu. Argonov. Entanglement, fidelity, and quantum-classical correlations with an atom moving in a quantized cavity field. Physical Review A. V.73 \(2006\) art. 023807 . DOI: 10.1103/PhysRevA.73.023807](#)

2. [V.Yu. Argonov and S.V. Prants. Nonlinear coherent dynamics of an atom in an optical lattice. Journal of Russian Laser Research. V.27 N4 \(2006\) 360-378 DOI: 10.1007/s10946-006-0019-7](#)

3. [Makarov D.V., Uleysky M.Yu., Budyansky M.V., and Prants S.V. Clustering in randomly driven Hamiltonian systems. Physical Review E. V. 73. 066210 \(2006\). DOI: 10.1103/PhysRevE.73.066210](#)

4. S.V. Prants, M.V. Budyansky, M.Yu. Uleysky, and G.M. Zaslavsky. Chaotic mixing and transport in a meandering jet flow. *Chaos*. V.16 (2006) art.no 033117. [doi:10.1063/1.2229263](https://doi.org/10.1063/1.2229263)
5. K.V. Koshel and S.V. Prants. Chaotic advection in the ocean. *Physics -- Uspekhi*. V.49 N11. (2006) P.1151-1178 [*Uspekhi Fisicheskikh Nauk*. V.176. N11 (2006) 1178-1206] [DOI: 10.1070/PU2006v049n11ABEH006066](https://doi.org/10.1070/PU2006v049n11ABEH006066)
6. V.Yu. Argonov and S.V. Prants. Chaotic walking of atoms in an optical lattice. *Acta Physica Hungarica B: Quantum Electronics*. V. 26 N 1-3 (2006) 121-128.
7. M.Yu. Uleysky, M.V. Budyansky, and S.V. Prants. Chaotic advection in a meandering jet flow. *Nonlinear Dynamics*. V.2 N2 (2006) 165-180.

2007

1. V.Yu. Argonov and S.V. Prants. Theory of chaotic atomic transport in an optical lattice. *Phys. Rev. A*. V.75 (2007) art.no. 063428. [DOI: 10.1103/PhysRevA.75.063428](https://doi.org/10.1103/PhysRevA.75.063428)
2. M.Yu. Uleysky, M.V. Budyansky, and S.V. Prants. 8 Effect of dynamical traps on chaotic transport in a meandering jet flow. *Chaos*. V.17. Is.4 (2007) art. no. 024703. [doi:10.1063/1.2783258](https://doi.org/10.1063/1.2783258)
3. S.V. Prants. Entanglement, fidelity and quantum chaos in cavity QED. *Communications in Nonlinear Science and Numerical Simulation*. V.12. Is.1 (2007) 19-30.
4. M.V. Budyansky, M.Yu. Uleysky, S.V. Prants. Lagrangian coherent structures, transport and chaotic mixing in simple kinematic ocean models. *Communications in Nonlinear Science and Numerical Simulation*. V.12. Is. 1 (2007) 31-44.

2008

1. V.Yu. Argonov and S.V. Prants. Nonlinear control of chaotic walking of atoms in an optical lattice. Europhysics Letters. Vol. 81 (2008) art. no. 24003. [doi: 10.1209/0295-5075/81/24003](https://doi.org/10.1209/0295-5075/81/24003)

2. V.Yu. Argonov, S.V. Prants. Manifestation of Hamiltonian chaos in dissipative atomic transport in a standing-wave laser field. JETP Letters. V. 88, is. 10 P. 752-756 (2008) [Pis'ma ZhETP V. 88, Is. 10 P. 752-756 (2008)]. [DOI 10.1134/S0021364008220049](https://doi.org/10.1134/S0021364008220049)

3. V.Yu. Argonov and S.V. Prants. Theory of dissipative chaotic atomic transport in an optical lattice. Physical Review A. V.78 (2008) art. no 043413. [DOI: 10.1103/PhysRevA.78.043413](https://doi.org/10.1103/PhysRevA.78.043413)

4. K.V. Koshel and S.V. Prants. Chaotic advection in the ocean. Institute of Computer science: Moscow-Izhevsk, 2008, 358 p. (in Russian).

5. M.Yu. Uleysky, M.V. Budyansky, S.V. Prants. Genesis and bifurcations of unstable periodic orbits in a jet flow. Journal of Physics A: Math. Theor. V. 41 (2008) 215102. [doi: 10.1088/1751-8113/41/21/215102](https://doi.org/10.1088/1751-8113/41/21/215102)

6. L.E. Konkov, T.L. Chizhova, Yu.V. Koudryashova, V.M. Chodnovsky, S.V. Prants. Nonlinear dynamics of a cellular Ryanodine channel. Rus. J. Nonlin. Dyn. V.4 №2 (2008) 181-192.

7. M.V. Budyansky, and S.V. Prants. Chaotic transport and fractals in a geophysical jet. Communications in Nonlinear Science and Numerical Simulation. V.13. Is.2 (2008) 434-443.

2009

1. L.E. Konkov and S.V. Prants. Effects of atomic motion in a standing-wave laser field on the Rabi oscillations. Journal of Russian Laser Research. V.30 N4 (2009) 404-410.

2. S.V. Prants. Proliferation of atomic wave packets at the nodes of a standing light wave. J. Exper. Theor. Phys. V. 109, is. 5. P. 751-761 (2009) [ZhETP. V. 136, is. 5. P. 872-884 (2009)].
[DOI: 10.1134/S1063776109110041](https://doi.org/10.1134/S1063776109110041)

3. M.V. Budyansky, M.Yu. Uleysky, and S.V. Prants. Detecting barriers to cross-jet Lagrangian transport and its destruction in a meandering flow. Physical Review E. V.79 N5 (2009) art. no 056215. [DOI: 10.1103/PhysRevE.79.056215](https://doi.org/10.1103/PhysRevE.79.056215)

4. Vasil'ev A. A., Vekshtein G., Galeev A. A., Erokhin N. S., Zakharov V. E., Zelenyi L. M., Karas' V. I., Kogan E. Ya., Kruglyakov E. P., Kuznetsov E. A., Litvak A. G., Lominadze J. G., Mikhailovskii A. B., Neishtadt A. I., Prants S. V., Sagdeev R. Z., Skrinisky A. N., Timofeev A. V., Fridman A. M., Shafranov V. D. In memory of George Zaslavsky. Plasma Physics Reports. V. 35 Is. 6 P. 526-527 (2009).

5. Vasil'ev A. A., Erokhin N. S., Zelenyi L. M., Ignatchenko V.F., Iomin A., Kogan E. Ya., Kolovsky A.R., Mukhin R.R., Neishtadt A. I., Prants S. V., Tarasov V.E., Fridman A.M. Georgy Moiseevich Zaslavsky 1935-2008. Izvestiya vischikh uchebnikh zavedenii. Prikladnaya Nelineinaya Dinamika. V. 17. № 1. (2009) P. 137-149.

6. S.V. Prants. In memory of Georgy Moiseevich Zaslavsky. Nelineinaya Dinamika. V. 4 N. 4 (2009) 515-516.

7. M.V. Budyansky, M.Yu. Uleysky, and S.V. Prants. Cross-frontal chaotic transport in ocean jet currents. In:
"Topics on Chaotic Systems, Selected Papers from CHAOS 2008 International Conference".
Singapore: World Scientific. P.202-213. 2009.

2010

1. D. Makarov, S. Prants, A. Virovlyansky, and G. Zaslavsky. Ray and wave chaos in ocean acoustics: chaos in waveguides. Singapore: World Scientific, 2010. 388 p. (monograph).

2. S.V. Prants. Hamiltonian chaos with a cold atom in an optical lattice. In book: Hamiltonian Chaos beyond the KAM Theory. (Berlin: Springer Verlag and Beijing: Higher Education Press, 2010), 193-223.(collective monograph).

3. S. V. Prants and V. O. Vitkovsky. Quantum carpets woven by cold atoms in a laser field. Journal of Russian Laser Research. V. 31 N2 (2010) 201-209. [DOI: 10.1007/s10946-010-9138-2](https://doi.org/10.1007/s10946-010-9138-2)

4. S.V. Prants. Matter-wave chaos with a cold atom in a standing-wave laser field. Chaos, Solitons & Fractals. V.43 N1-12 (2010), [doi:10.1016/j.chaos.2010.05.001](https://doi.org/10.1016/j.chaos.2010.05.001)

5. M.Yu. Uleysky, M.V. Budyansky, and S.V. Prants. Mechanism of destruction of the transport barriers in geophysical jets with Rossby waves. Physical Review E. V.81 (2010) art. no 017202. [DOI: 10.1103/PhysRevE.81.017202](https://doi.org/10.1103/PhysRevE.81.017202)

6. L.E. Konkov and S.V. Prants. Matter-wave propagation in an optical lattice. Journal of Russian Laser Research. V. 31 N2 (2010) 201-213.

7. M.Yu. Uleysky, M.V. Budyansky, S.V. Prants. Chaotic cross-jet transport in two dimensional flows. J. Exper. Theor. Phys. V.111 , is.6 P. 1039-1049 (2010) [Zh. Eksper. Teor. Fiz. V. 138, is. 6 . P. 1175-1188 (2010)].

8. S.V. Prants. On the possibility of observing nonadiabatic atomic transitions in a laser field and their application to nanolithography. JETP Letters. V.92, N11, p.726-730 (2010) [Pis'ma ZhETF. V. 92, is. 11. P. 808-813 (2010)]. [DOI: 10.1134/S0021364010230025](https://doi.org/10.1134/S0021364010230025)

9. V.O. Vitkovsky, L. E. Konkov and S.V. Prants. Atomic de Broglie-wave chaos. "Chaotic Systems: Theory and Applications" C. H. Skiadas and I. Dimotikalis (Editors). Singapore: World Scientific. P. 369-376 (2010).

2011

1. S.V. Prants, M.V. Budyansky, V.I. Ponomarev, M.Yu. Uleysky Lagrangian study of transport and mixing in a mesoscale eddy street // Ocean Modelling V.38 (2011) p. 114–125 [DOI:10.1016/j.ocemod.2011.02.008](https://doi.org/10.1016/j.ocemod.2011.02.008)

2. M.V. Budyansky, V.I. Ponomarev, P.A. Fyman, M.Yu. Uleysky and S.V. Prants. Lagrangian approach to chaotic transport and mixing in the Japan Sea. Chaos Theory: Modeling, Simulation and Applications. Selected Papers from the 3rd Chaotic Modeling and Simulation International Conference (CHAOS2010) (eds. C.H. Skiadas, I. Dimotikalis, C. Skiadas). Singapore: World Scientific. P.3-13. 2011. 468p. <http://eproceedings.worldscinet.com/9789814350341/toc.shtml>

3. I.I. Beterova, D.B. Tretyakova, V.M. Entina, E.A. Yakshinaa, I.I. Ryabtseva, P.L. Chapovsky, I. Yudin, A.N. Goncharov, A. V. Taychenachev, and S. V. Prants. Quantum Informatics with Single Atoms. Russian Microelectronics, 2011, Vol. 40, No. 4, pp. 237-244 [Mikroelektronika, 2011, Vol. 40, No. 4, pp. 256-263].

4. S.V. Prants. Group-theoretical approach to study atomic motion in a laser field. Journal of Physics A. V. 44 (2011) art.no. 265101.

5. S.V. Prants, M.Yu. Uleysky, M.V. Budyansky. Numerical simulation of propagation of radioactive pollution in the ocean from the Fukushima-Dai-ichi nuclear plant. Doklady Earth Sciences. V. 439 (2011) 1179-1182 [Dokl. Akad. Nauk. V.439 N6 (2011) 811-814].

6. S.V. Prants, V.O. Vitkovsky, L.E. Konkov. Geometric optics with atomic beams scattered by a detuned laser standing wave. Journal of Russian Laser Research, V. 32, № 6 (2011) p. 556-563.

2012

1. A. L. Virovlyansky, D. V. Makarov, S. V. Prants. Ray and wave chaos in underwater acoustic waveguides. Physics-Uspekhi V.55 N1. (2012) P. 18-46 (2012) 2. S.V. Prants. Nonadiabatic quantum chaos in atom optics. Communications in Nonlinear Science and Numerical Simulation. V.17 (2012) 2713-2721. doi 10.1016/j.cnsns.2011.11.021

3. S.V. Prants, M.V. Budyansky, M.Yu. Uleysky. Lagrangian tools to monitor transport and mixing in the ocean. In: CHAOS, COMPLEXITY AND TRANSPORT. Selected Papers from the International Conference (eds. Xavier Leoncini & Marc Leonetti). Singapore: World Scientific. P.33-46. 2012. DOI: 10.1142/9789814405645_0004

4. D.V. Makarov, M.Yu. Uleysky, S.V. Prants. Control of atomic transport using autoresonance. In: CHAOS, COMPLEXITY AND TRANSPORT. Selected Papers from the International

Conference (eds. Xavier Leoncini & Marc Leonetti). Singapore: World Scientific. P.24-32. 2012. DOI: 10.1142/9789814405645_0003

5. S.V. Prants. Chaotic scattering of atoms at a standing laser wave. Europhysics Letters. V. 99 (2012) art. no. 20009 doi: 10.1209/0295-5075/99/20009

6. S.V. Prants, M.Yu. Uleysky, M.V. Budyansky. Lagrangian Coherent Structures in the Ocean Favorable for Fishery. Doklady Earth Sciences, 2012, Vol. 447, Part 1, pp. 1269-1272.

7. S.V. Prants, V.O. Vitkovsky. Chaotic walking and fractal scattering of atoms in a tilted optical lattice. Journal of Russian Laser Research, V. 33, № 3 (2012) p. 293-300.

1. A. L. Virovlyansky, D. V. Makarov, S. V. Prants. Ray and wave chaos in underwater acoustic waveguides. Physics-Uspekhi V.55 N1. (2012) P. 18-46 (2012)

2. S.V. Prants. Nonadiabatic quantum chaos in atom optics. Communications in Nonlinear Science and Numerical Simulation. V.17 (2012) 2713-2721. DOI: 10.1016/j.cnsns.2011.11.021

3. S.V. Prants, M.V. Budyansky, M.Yu. Uleysky. Lagrangian tools to monitor transport and mixing in the ocean. In: CHAOS, COMPLEXITY AND TRANSPORT. Selected Papers from the International Conference (eds. Xavier Leoncini & Marc Leonetti). Singapore: World Scientific. P.33-46. 2012. DOI: 10.1142/9789814405645_0004

4. D.V. Makarov, M.Yu. Uleysky, S.V. Prants. Control of atomic transport using autoresonance. In: CHAOS, COMPLEXITY AND TRANSPORT. Selected Papers from the International Conference (eds. Xavier Leoncini & Marc Leonetti). Singapore: World Scientific. P.24-32. 2012. DOI: 10.1142/9789814405645_0003

5. S.V. Prants. Chaotic scattering of atoms at a standing laser wave. Europhysics Letters. V. 99 (2012) art. no. 20009 DOI: 10.1209/0295-5075/99/20009

6. S.V. Prants, M.Yu. Uleysky, M.V. Budyansky. Lagrangian Coherent Structures in the Ocean Favorable for Fishery. Doklady Earth Sciences, 2012, Vol. 447, Part 1, pp. 1269-1272.

7. S.V. Prants, V.O. Vitkovsky. Chaotic walking and fractal scattering of atoms in a tilted optical lattice. Journal of Russian Laser Research, V. 33, № 3 (2012) p. 293-300. 2013 № 1. V

.O. Vitkovsky, S.V. Prants. Splitting of Atomic Beams by Light for Creation of High-Resolution Spatial Structures in Optical Nanolithography. Optics and Spectroscopy, 2013, Vol. 114, No. 1, pp. 52-59.

DOI: 10.1134/S0030400X1301027X

2. S. V. Prants, V. I. Ponomarev, M. V. Budyansky, M. Yu. Uleysky, and P. A. Fayman.

Lagrange Analysis of Mixing and Transfer of Water Masses in the Gulfs. Izvestiya, Atmospheric and Oceanic Physics, 2013, Vol. 49, No. 1, pp. 82-96.

3. S.V. Prants. Dynamical systems theory methods for studying mixing and transport in the ocean. Physica Scripta. 2013. V.87 art.no. 038115

4. S.V. Prants, A.G. Andreev, M.V. Budyansky, M.Yu. Uleysky. Impact of mesoscale eddies on surface flow between the Pacific Ocean and the Bering Sea across the Near Strait. Ocean Modelling. 2013. V. 72 P.143-152

[DOI: 10.1016/j.ocemod.2013.09.003](https://doi.org/10.1016/j.ocemod.2013.09.003)

2014

1. S.V. Prants, M.V. Budyansky, M.Yu. Uleysky. Lagrangian fronts in the ocean. Izvestiya, Atmospheric and Oceanic Physics. Vol. 50, No.3 (2014) pp.284-291.

[DOI: 10.1134/s0001433814030116](https://doi.org/10.1134/s0001433814030116)

2. S.V. Prants, M.V. Budyansky, M.Yu. Uleysky. Lagrangian study of surface transport in the Kuroshio Extension area based on simulation of propagation of Fukushima-derived radionuclides. Nonlinear Processes in Geophysics. V.21, 279-289, 2014.

[DOI: 10.5194/npg-21-279-2014](https://doi.org/10.5194/npg-21-279-2014)

3. S.V. Prants, A.G. Andreev, M.Yu. Uleysky, M.V. Budyansky. Lagrangian study of temporal changes of a surface flow through the Kamchatka Strait. Ocean Dynamics.

V.64 (N6) 771-780 (2014)

[DOI: 10.1007/s10236-014-0706-9](https://doi.org/10.1007/s10236-014-0706-9)

4. S.V. Prants, M.V. Budyansky, M.Yu. Uleysky. Identifying Lagrangian fronts with favourable fishery conditions. Deep Sea Research I. V. 90, p.27-35 (2014)

[DOI: 10.1016/j.dsr.2014.04.012](https://doi.org/10.1016/j.dsr.2014.04.012)

5. S.V. Prants. Chaotic Lagrangian transport and mixing in the ocean. The European Physical Journal Special Topics. V.223, Issue 13, pp 2723-2743 (2014)

[DOI: 10.1140/epjst/e2014-02288-5](https://doi.org/10.1140/epjst/e2014-02288-5)

2015

□

1. M.V. Budyansky, V.A. Goryachev, D.D. Kaplunenko, V.B. Lobanov, S.V. Prants, A.F. Sergeev, N.V. Shlyk, M.Yu. Uleysky. Role of mesoscale eddies in transport of Fukushima-derived cesium isotopes in the ocean. Deep Sea Research I. (2015), V.96, pp. 15-27

[DOI information: 10.1016/j.dsr.2014.09.007](https://doi.org/10.1016/j.dsr.2014.09.007);

2. S.V. Prants, M.V. Budyansky, V.I. Ponomarev, M.Yu. Uleysky, P.A. Fayman Lagrangian analysis of the vertical structure of eddies simulated in the Japan Basin of the Japan/East Sea. Ocean Modelling. V.86 pp.128-140 (2015)

<http://dx.doi.org/10.1016/j.ocemod.2014.12.010>;

3. S.V. Prants, L.E. Konkov. Impact of spontaneous emission on the form and dynamics of atomic wave packets in an optical lattice. Journal of Russian Laser Research. V. 36 N3 p.201-210 (2015).

[DOI 10.1007/s10946-015-9493-0](https://doi.org/10.1007/s10946-015-9493-0);

4. S.V. Prants. Dynamical symmetries, control and chaos with moving atoms in high-quality cavities. Journal of Russian Laser Research. V. 36 N3, p.211-227 (2015).

[DOI 10.1007/s10946-015-9494-z](https://doi.org/10.1007/s10946-015-9494-z);

5. S.V. Prants. Backward-in-time methods to simulate chaotic transport and mixing in the ocean. Physica Scripta V. 90 074054 (2015).

[doi:10.1088/0031-8949/90/7/074054](https://doi.org/10.1088/0031-8949/90/7/074054) [Science 1.2](#)

.

6. S.V. Prants, A.G. Andreev, M.V. Budyansky, M.Yu. Uleysky. Impact of the Alaskan Stream flow on surface water dynamics, temperature, ice extent, plankton biomass and walleye pollock stocks in the eastern Okhotsk Sea. J. Marine Systems. V.151 pp.47-58 (2015).

[doi:10.1016/j.jmarsys.2015.07.001](https://doi.org/10.1016/j.jmarsys.2015.07.001);

7. S.V. Prants. Modeling fluid dynamics in the ocean and atmosphere. Discontinuity, Nonlinearity, and Complexity. V.4, N3 pp. 219-223 (2015).

[DOI: 10.5890/DNC.2015.09.001](https://doi.org/10.5890/DNC.2015.09.001);

8. S.V. Prants, M.V. Budyansky, M.Yu. Uleysky, J. Zhang. Hyperbolicity in the ocean. Discontinuity, Nonlinearity, and Complexity. V.4, N3 pp. 257-270 (2015).

[DOI: 10.5890/DNC.2015.09.004](https://doi.org/10.5890/DNC.2015.09.004)

9. S.V. Prants, M.Yu. Uleysky. Genealogical tree of Russian schools on Nonlinear Dynamics Bulletin of Far-Eastern Branch of the Russian Academy of Sciences(in Russian). No. 6 pp. 164-172 (2015).

2016

1. S.V. Prants, V.B. Lobanov, M.V. Budyansky, M.Yu. Uleysky. Lagrangian analysis of formation, structure, evolution and splitting of anticyclonic Kuril eddies. Deep Sea Research I. V.109 pp.61–75 (2016).

[DOI: 10.1016/j.dsr.2016.01.003](https://doi.org/10.1016/j.dsr.2016.01.003)

2. Sergey V. Prants. A Lagrangian study of eddies in the ocean. Regular and Chaotic Dynamics, 2016, Vol. 21, No. 3, pp. 335–350.

[DOI: 10.1134/S1560354716030060](https://doi.org/10.1134/S1560354716030060)

3. S.V. Prants. Laser-induced climbing of cold atoms against the gravity. Journal of Russian Laser Research. V.37 N5, p.407-412 (2016).

4. S.V. Prants. Light-Induced Atomic Elevator in Optical Lattices. JETP Letters. V.104, issue 11, p.749-753 (2016) DOI: 10.1134/S0021364016230120 [Pis'ma ZETP. V.104, issue 11, p.769-773 (2016) DOI: 10.7868/S0370274X16230028].

2017

1. S.V. Prants, M.Yu. Uleysky, M.V. Budyansky. Lagrangian oceanography: large-scale transport and mixing in the ocean. Berlin, New York. Springer Verlag. 2017. 271 p. ISSN 1610-1677 ISBN 978-3-319-53021-5.

2. Peihua Feng, Jiazhong Zhang, Shengli Cao, S.V. Prants. Thermalized solution of the Galerkin-truncated Burgers equation: from the birth of local structures to thermalization. Communications in nonlinear science and numerical simulation. V.45 P. 104-116 (2017). DOI: 10.1016/j.cnsns.2016.09.004

3. S.V. Prants, A.G. Andreev, M.V. Budyansky, M.Yu. Uleysky. Mesoscale circulation along the Sakhalin Island eastern coast. Ocean Dynamics. (2017) V. 67. Is.3 P. 345-356. doi:10.1007/s10236-017-1031-x

4. S.V. Prants, M.V. Budyansky, M.Yu. Uleysky. Statistical analysis of Lagrangian transport of subtropical waters in the Japan Sea based on AVISO altimetry data. Nonlin. Processes Geophys. V.24, p. 89-99, 2017 doi:10.5194/npg-24-1-2017.

5. S.V. Prants. Quantum-classical correspondence in chaotic dynamics of laser-driven atoms. Physica Scripta. V. 92 044002 2017. Doi: 10.1088/1402-4896/aa5f8f

6. S.V. Prants, M.Yu. Uleysky. Genealogical Tree of Russian schools on Nonlinear Dynamics. Discontinuity, Nonlinearity, and Complexity V.6(2) (2017) P.191–199. DOI : 10.5890/DNC.2017.06.007

7. Pavel S. Petrov, Sergey V. Prants and Tatyana N. Petrova. Analytical Lie-algebraic solution of a 3D sound propagation problem in the ocean Physics Letters A. V.381 P.1921-1925 (2017). <http://dx.doi.org/10.1016/j.physleta.2017.04.011> 0375-9601/2017

8. S.V. Prants, L.E. Konkov. On the possibility of observing chaotic walking of cold atoms in rigid optical lattices. Quantum Electronics 47 (5) 446 – 450 (2017).

9. S.V. Prants, M.V. Budyansky, M.Yu. Uleysky. Lagrangian simulation and tracking of the mesoscale eddies contaminated by Fukushima-derived radionuclides. *Ocean Science*. V.13 P.453-463 (2017). <https://doi.org/10.5194/os-13-453-2017>
10. M.V. Budyansky, S.V. Prants, E.V. Samko, M.Yu. Uleysky. Identification and Lagrangian analysis of oceanographic structures favorable for fishery of neon flying squid (*Ommastrephes bartramii*) in the South Kuril area. *Oceanology*, 2017, Vol. 57, No. 5, pp. 648–660.
11. M.V. Budyansky, M.Yu. Uleysky, A.G. Andreev, S.V. Prants. A Lagrangian analysis of Kuril eddies. *Vestnik DVO*. N4 P.81-88 (2017) (in Russian)

2018

1. Prants S.V., Budyansky M.V., Uleysky M.Yu. How eddies gain, retain and release water: the case study of a Hokkaido anticyclone. *Journal Geophysical Research. Oceans*. 2018. Vol. 123. Is. 3. P. 2081-2096. DOI: 10.1002/2017JC013610
2. Prants S.V., Uleysky M.Yu., Budyansky M.V. Lagrangian study of transport of subarctic water across the Subpolar Front in the Japan Sea. *Ocean Dynamics*. 2018. V. 68(6). P. 701-712. <https://doi.org/10.1007/s10236-018-1155-7>
3. Ponomarev V.I., Fayman P.A., Prants S.V., Budyansky M.V., Uleysky M.Yu. Simulation of mesoscale circulation in the Tatar Strait of the Japan Sea. *Ocean Modelling*. 2018. V. 126. P. 43-55. <https://doi.org/10.1016/j.ocemod.2018.04.006>
4. Prants S.V., Uleysky M.Yu., Budyansky M.V. Lagrangian analysis of transport pathways of subtropical water to the Primorye coast. *Doklady Earth Sciences*. 2018. Vol. 481. Part 2. P. 1099–1103. [Doklady Akademii Nauk, 2018, Vol. 481, No. 6.]. doi:

10.1134/S1028334X18080329

5. Andreev A, Budyansky M., Uleysky M., Prants S. Mesoscale dynamics and walleye pollock catches in the Navarin Canyon area of the Bering Sea. Ocean Dynamics. 2018. V.68, N 11. P. 1503-1514. <https://doi.org/10.1007/s10236-018-1208-y>

6. Wang W., Prants S.V., Zhang J., Wang L. A. Lagrangian Analysis of Vortex Formation in the Wake behind a Transversely Oscillating Cylinder. Regular and Chaotic Dynamics. 2018. Vol. 23, No. 5. P. 579–590. DOI: 10.1134/S1560354718050076

2019

1. Sergey Prants, Gregory Reznik, Jacques Verron. Preface to the Topical Collection (The International Conference ``Vortices and Coherent Structures: from Ocean to Microfluids'', Vladivostok, Russia, 28-31 August 2017), Ocean Dynamics. 69(4), 509-512. 2019. <https://doi.org/10.1007/s10236-019-01257-3>

2. S.V. Prants, A.G. Andreev, M.Yu. Uleysky, M.V. Budyansky. Lagrangian study of mesoscale circulation in the Alaskan Stream area and the eastern Bering Sea. Deep Sea Research II. V. 169-170 art. No. 104560 (2019) DOI: <https://doi.org/10.1016/j.dsr2.2019.03.005>

3. P.A. Fayman, S.V. Prants, M.V., Budyansky, M.Yu. Uleysky. Coastal summer eddies in the Peter the Great Bay of the Japan Sea: in situ data, numerical modeling and Lagrangian analysis. Continental Shelf Research. V.181. 143-155. 2019 <https://doi.org/10.1016/j.csr.2019.05.002>

4. S.V. Prants and L.E. Kon'kov. The effect of internal dynamics of cold atoms in 2D optical lattices with interfering laser beams. J. Russ. Laser Res. V.40, N4. 348-355 2019. DOI [10.1007/s10946-019-09810-7](https://doi.org/10.1007/s10946-019-09810-7)

5. S.V. Prants. Weak chaos with cold atoms in a 2D optical lattice with orthogonal polarizations of laser beams. J. Russ. Laser Res. V.40, N3. 213-220 2019. DOI [10.1007/s10946-019-09810-7](https://doi.org/10.1007/s10946-019-09810-7)

[46-019-09792-6](#)

2020

1. S.V. Prants, V.V. Kulik, M.V. Budyansky, M.Yu. Uleysky. Relationship between Saury Fishing Grounds and Large-Scale Coherent Structures in the Ocean, According to Satellite Data Izvestiya, Atmospheric and Oceanic Physics. 2020, Vol. 56, No. 12 pp. 1638–1644. DOI: [10.1134/S000143382012050](#)
2. S.V. Prants. Chaotic walking of cold atoms in a 2D optical lattice. J. Exper. Theor. Phys. Vol. Vol. 131, No. 3, pp. 410–417. (2020) DOI: [10.1134/S106377612008004X](#)
3. S.V. Prants and L.E. Kon'kov. Patterns with cold atoms in a square optical lattice. J. Russ. Laser Res. V.41, N.3 - P.300-309. 2020. DOI [10.1007/s10946-020-09879-5](#)
4. S.V. Prants, M.V. Budyansky, V. B. Lobanov, A. F. Sergeev and M.Yu. Uleysky. Observation and Lagrangian analysis of quasi-stationary Kamchatka trench eddies. Journal of Geophysical Research (Oceans) 2020 V.125 , Issue 6. e2020JC016187 <https://doi.org/10.1029/2020JC016187 >
5. P.A. Fayman, S.V. Prants, M.V. Budyansky, M.Yu. Uleysky. New circulation features in the Okhotsk Sea from a numerical model. Izvestiya, Atmospheric and Oceanic Physics. 2020, Vol. 56, No. 6, pp. 618–631. DOI: [10.1134/S0001433820060043](#)

6. P.A. Fayman, M.V. Budyansky, M.Yu. Uleysky, S.V. Prants, V.L. Vysotsky, D.A. Pripachkin. Modeling the transport of radioactive pollution in the Ussuri Gulf during the first days after the nuclear accident in the Chazhma Bay in August 1985. Vestnik DVO RAN (In Russ. English abstract) N5 2020. p.18-31.

7. Kulik V.V., Prants S.V., Budyansky M.V., Uleysky M.Yu., Fayman P.A., Glebov I.I., Glebova S.Yu., Novikov R.N. Relationship of the greenland halibut stocks in the Okhotsk sea with environmental factors. Izvestiya TINRO. 2020. V.200. pp. 58-81. (In Russ. English abstract) <https://doi.org/10.26428/1606-9919-2020-200-58-81>

2021

1. T. V. Belonenko, V.A. Zinchenko, A. M. Fedorov, M.V. Budyansky, S.V. Prants, M. Yu. Uleysky. Interaction of the Lofoten Vortex with a satellite cyclone. Pure and Applied Geophysics.V.178 2021 p. 287-300. <https://doi.org/10.1007/s00024-020-02647-1>

2. S.Abdalla, A.Abdeh Kolahchi, S.Adusumilli, ... S.V. Prants et al. International Altimetry team. Altimetry for the future: Building on 25 years of progress. Advances in Space Research. 2021. V.68 p.319-363 <https://doi.org/10.1016/j.asr.2021.01.022>

3. P.A. Fayman, S.V. Prants, M.V. Budyansky, M.Yu. Uleysky. Simulated pathways of the Northwestern Pacific Water in the Okhotsk Sea and ocean-sea exchange transport. Izvestiya,

Atmospheric and Oceanic Physics. 2021 Vol. 57, No. 3, pp. 329-340. DOI:
[10.1134/S000143382103004X](https://doi.org/10.1134/S000143382103004X)

4. Alexandre L'Her, Markus Reinert, Sergey Prants, Xavier Carton, Mathieu Morvan. Eddy formation in the bays of Kamchatka and fluxes to the open ocean. Ocean Dynamics. V.71. P.601-612
<https://doi.org/10.1007/s10236-021-01449-w>

5. S.V. Prants. Trench eddies in the Northwest Pacific: an overview. Izvestiya, Atmospheric and Oceanic Physics. 2021. V.57. No4. p.341-353. DOI
[10.1134/S0001433821040216](https://doi.org/10.1134/S0001433821040216)

6. S.V. Prants, M.V., Budyansky, M.Yu. Uleysky, Kulik V.V. Lagrangian fronts and saury catch locations in the Northwestern Pacific in 2004-2019. J. Marine Systems. 2021. V. 222. Art. No. 103605 DOI:
[10.1016/j.jmarsys.2021.103605](https://doi.org/10.1016/j.jmarsys.2021.103605)

7. Sergey V. Prants, Leonid E. Kon'kov. and Aleksandr A. Didov. Three-dimensional nonlinear dynamics of cold atoms in an optical lattice and its realizations. J. Russ. Laser Res. 2021. V.42, N.5. P.558-568. DOI
[10.1007/s10946-021-09994-x](https://doi.org/10.1007/s10946-021-09994-x)

8. A.M. Fedorov, T.V. Belonenko, M.V. Budyansky, S.V. Prants, M.Yu. Uleysky, I.L. Bashmachnikov. Lagrangian Modeling of Water Circulation in the Lofoten Basin. Dynamics of Atmospheres and Oceans. V.96, art.no. 101268 2021. DOI
[10.1016/j.dynatmoce.2021.101258](https://doi.org/10.1016/j.dynatmoce.2021.101258)

2022

1. V.S. Travkin, T. V. Belonenko, M.V. Budyansky, S.V. Prants, M. Yu. Uleysky, Gnevyshev V.G, Roshin. P. Raj. Quasi-permanent mushroom-like dipole in the Lofoten basin. Pure and Applied Geophysics. 2022.V.179, pages 465-482 DOI
[10.1007/s00024-021-02922-9](https://doi.org/10.1007/s00024-021-02922-9)

2. Prants S.V. Motion of cold atoms in a labyrinth created by a three-dimensional optical lattice. J. Russ. Laser Res. 2022. V.43, N.1. p.30-39. DOI
[1071-2836/22/4301-0030](https://doi.org/10.71-2836/22/4301-0030)

3. M. V. Budyansky, P. A. Fayman, M. Yu. Uleysky and S. V. Prants. The impact of circulation features on the dispersion of radionuclides in the Chazhma Bay: a Lagrangian simulation. Marine Pollution Bulletin. 2022.V. 177, 113483 DOI
[10.1016/j.marpolbul.2022.113483](https://doi.org/10.1016/j.marpolbul.2022.113483)

4. S.V. Prants. Marine life at Lagrangian fronts. Progress in Oceanography. 2022. V.204 102790. DOI
[10.1016/j.pocean.2022.102790](https://doi.org/10.1016/j.pocean.2022.102790)

5. M.V. Budyansky, S.V. Prants, M.Yu. Uleysky. Odyssey of Aleutian eddies. Ocean Dynamics. 2022.V.72, p. 455-476. DOI
[10.1007/s10236-022-01508-w](https://doi.org/10.1007/s10236-022-01508-w)

6. S.V. Prants, P.A. Fayman, M.V. Budyansky, M.Yu. Uleysky. Simulation of winter deep slope convection in Peter the Great Bay (Japan Sea). 2022. Fluids. V.7(4). 134. DOI
[10.3390/fluids7040134](https://doi.org/10.3390/fluids7040134)

7. V.V. Kulik, S.V. Prants, M.Yu. Uleysky, M.V. Budyansky. Lagrangian characteristics in the western North Pacific help to explain variability in Pacific saury fishery. Fisheries Research. 2022.V.252 106361. DOI
[10.1016/j.fishres.2022.106361](https://doi.org/10.1016/j.fishres.2022.106361)

8. M.V. Budyansky, V.V. Kulik, K.K. Kivva, M.Yu. Uleysky, and S.V. Prants. Lagrangian Analysis of Pacific Waters in the Sea of Okhotsk Based on Satellite Data in Application to the Alaska Pollock Fishery. *Izvestiya, Atmospheric and Oceanic Physics*, 2022, Vol. 58, No. 12, P. 1427-1437. DOI:

[10.1134/S0001433822120088](https://doi.org/10.1134/S0001433822120088)

2023

1. Hiromichi Ueno, Annalisa Bracco, John A. Barth, Maxim V. Budyansky, Daisuke Hasegawa, Sachihiko Itoh, Sung Yong Kim, Carol Ladd, Xiaopei Lin, Young-Gyu Park, Sergey Prants, Tetjana Ross, Irina Rypina, Yoshikazu Sasai, Olga O. Trusenкова, Elena I. Ustinova, Yisen Zhong. Review of oceanic mesoscale processes in the North Pacific: physical and biogeochemical impacts *Progress in Oceanography*. (2023) V.212 102955 DOI:

[10.1016/j.pocean.2022.102955](https://doi.org/10.1016/j.pocean.2022.102955)

2. S.V. Prants, M.V. Budyansky, P.A. Fayman, M.Yu. Uleysky, A.A. Didov. Lagrangian Oil Spill Simulation in Peter the Great Bay (the Sea of Japan) with a high-resolution ROMS model. *Pure and Applied Geophysics*. 2023. V.180, pages 551–568 DOI:

[10.1007/s00024-022-03197-4](https://doi.org/10.1007/s00024-022-03197-4)

3. K.K. Kivva, M.V. Budyansky, M.Y. Uleysky, S.V. Prants. Aanalysis of the spatio-temporal variability of Pacific water distribution in the Sea of Okhotsk based on Lagrangian approach. *TRUDY VNIRO*. 2023. V. 193. P. 101-118. DOI:

[10.36038/2307-3497-2023-193-101-118](https://doi.org/10.36038/2307-3497-2023-193-101-118)

Trudi VNIRO (abstract in English)

4. K.K. Кивва, М.В. Будянский, М.Ю. Улейский, С.В. Пранц. Анализ пространственно-временной изменчивости распространения тихоокеанских вод в Охотском море на основе лагранжева подхода. Труды ВНИРО (спецвыпуск по

сотрудничеству с РАН). 2023. Т. 193. С. 101-118. DOI:
[10.36038/2307-3497-2023-193-101-118](https://doi.org/10.36038/2307-3497-2023-193-101-118)

5. A.A. Udalov, M.V. Budyansky, S.V. Prants. A census and properties of mesoscale Kuril eddies in the altimetry era. Deep Sea Research I. 2023. V. 200, art. no. 104129 DOI:
[10.1016/j.dsr.2023.104129](https://doi.org/10.1016/j.dsr.2023.104129)

6. Prants, S. Transport Barriers in Geophysical Flows: A Review. Symmetry 2023, 15, Issue 10, p. 1942. DOI:
[10.3390/sym15101942](https://doi.org/10.3390/sym15101942)