MAKSIMOV Alexey Olegovich

D.Sc., Ph.D.

Awardee of the V.I. Il'ichev Prize of FEBRAS'

Curriculum Vitae

Personal Details

Name: Alexey Olegovich Maksimov

Date of Birth: 30th December 1949

Nationality: Russian

Marital Status: Married

Education

- ***D.Sc. in Physics and Mathematics***, *Pacific Oceanological Institute*,Vladivostok, 2006
- ***Ph.D. in Physics***, *Physical-Technical Institute of Low Temperature*,Kharkov , 1980
- ***M.S. in Physics (Theoretical Physics) with distinction,*** *Leningrad (St. Petersburg earlier and now) State University*, Leningrad (St. Petersburg), 1973

- ***Student,*** *Leningrad (St. Petersburg) State University* , Leningrad (St. Petersburg), 1970-1973
- ***Student,*** *Far East State University* , Vladivostok , 1967-1970

Employment History

September 1997 - Present

Leading Scientific Staff, *Laboratory of Nonlinear Dynamical Systems, Pacific Oceanological Institute, Far East Branch of Russian Academy of Sciences*,Vladivostok 690041

July 1987 - September 1997

Senior Scientific Staff, *Laboratory of Vibroacoustics, Pacific Oceanological Institute*, *Far East Branch of Russian Academy of Sciences*, Vladivostok 690041

June 1985 - July 1997

Senior Scientific Staff, *Laboratory of Hydrophysics, Pacific Oceanological Institute, Far East Branch of Russian Academy of Sciences* , Vladivostok 690041

May 1980 - June 1985

Scientific Staff, *Laboratory of Phase Transformations, Pacific Oceanological Institute, Far East Branch of Russian Academy of Sciences* , Vladivostok 690041

October 1974 - March 1980

Scientific Staff, *Theoretical Department Physical-Technical Institute of Low Temperature,* Khar kov

May 1973 October 1974

Researcher, *Physical-Technical Institute Ukrainian Academy of Sciences* ,Kharkov

Dr. Maksimov's current interests are *Lie group symmetries in bubbly fluids, sonoluminescence, nonlinear waves in liquids with phase inclusions, acoustic techniques to study seeps of marine oil and gas fields, optoacoustics*

Activities

Professional Activities

- Member of the Scientific Council at the Pacific Oceanological Institute, **1990-1994.**
- Supervisor of Ph.D. students, **1999-2003.**
- Assistant Professor of Physics at the Far-Eastern State University , Vladivostok, **1999-pr**e sent.

- Senior Scientific Staff of Physics at the Far-Eastern State Marine University,Vladivostok , **2003-present.**

Research grants

Short-termed International Science Foundation grant (1993).

Russian Foundation fot Basic Research grants (1996-1997, 2001-2003, 2004-2006, 2008-2010, 2011-present time).

Far-Eastern Branch of the Russian Academy of Sciences Program "International Cooperation in Basic Research" (2003).

Far-Eastern Branch of the Russian Academy of Sciences Program “Basic Research” (2012-preent time).

I am a member of **Russian Acoustical Society**.

Skills

I hold an international driving license since 1981.

I have a good working knowledge of Mathcad and MatLab, and I regularly use Microsoft Word, Excel, Corel Draw and Origin desk-top publishing packages. Some publications have been prepared by use LaTeX. I also have a basic understanding of FORTRAN programming language.

I have experience at both written and oral communication, being required to present the results of my research at formal group meetings and at international conferences.

Publications

Recent

Papers in peer-reviewed journals

1. Maksimov A. Radiation force on a bubble located near an interface. J. Acoust. Soc. Am. 2022. V. 151(3). P. 1464–1475. DOI 10.1121/10.0009673
2. Maksimov A. Splitting of the surface modes for bubble oscillations near a boundary // Phys. Fluids. 2020. V. 32. No. 10. Article Number 102104. / DOI /10.1063/5.0025196 /
3. Maksimov A.O. Dynamics of constrained bubbles: symmetry approach // Proc. Mtgs. Acoust. 2019. V. 38. Article number 045011. / DOI 10.1121/2.0001112
4. Maksimov A.O., Leighton T.G. Acoustic radiation force on a parametrically distorted bubble // J. Acoust. Soc. Am. 2018. V. 143. No 1. P. 296–305. / DOI 10.1121/1.5020786
5. Maksimov A.O., Polovinka Yu.A. Scattering from a pair of closely spaced bubbles // J. Acoust. Soc. Am. 2018. V. 144. No 1. P. 104–144. / DOI /10.1121/1.5020786
6. Maksimov A.O. Symmetry Approach in the Evaluation of the Effect of Boundary Proximity on Oscillation of Gas Bubbles // Fluids 2018. V 3. Article number 90. / DOI 10.3390/fluids3040090
7. Maksimov A.O., Yusupov V.I., Coupled oscillations of a pair of closely spaced bubbles // European Journal of Mechanics B/Fluids 2016. V. 60. No 6. P. 164–174. / DOI: 10.1016/j.euromechflu.2016.09.013
8. Maksimov A.O., Polovinka Yu.A. The peculiarities of the implementation of time reversal method for gas leakage detection on Sakhalin shelf // POMA 2015. V. 24. No 1. Article Number 070002.

9. Maksimov A.O., Polovimka Yu.A. Time reversal technique for gas leakage detection // J. Acoust. Soc. Am. 2015. V. 137. No 4. P. 2168–2179.

10. Maksimov A.O., Burov B.A., Salomatin A.S., and Chernykh D.V. Sounds of marine seeps: A study of bubble activity near a rigid boundary // J. Acoust. Soc. Am. 2014. V. 136. No 3. P. 1065–1076.

11. Polovinka Yu.A., Maksimov A.O. Method of passive acoustic monitoring near bottom gas flows // Patent RF № 2521717. Pending 29.01.2013. Published 10.07.2014 Bulletin of Inventions № 19.

12. Polovinka Yu.A., Maksimov A.O. Geophysical complex for detection of near bottom gas-fluid flows // Patent RF № 129639. Pending 29.01.2013. Published 27.06.2013 Bulletin of Inventions № 19.Патент РФ № 129639 на полезную модель Заявл. 29.01.2013. Опубл. 27.06.2013, Бюл. №18.

13. Maksimov A.O., Polovinka Yu.A. Dynamics of constrained bubbles // POMA 2013. V. 19. No 1. Article Number 075099.

14. Maksimov A.O. Acoustic manifestations of frozen bubbles // POMA 2013. V. 19. No 1. Article Number 070048.

15. Maksimov A.O., Leighton T.G. Pattern formation on the surface of a bubble driven by an acoustic field. *Proceeding of the Royal Society A* **468**(2137), 2012, 57–75 (DOI:10.1098/rspa.2011.0366).

16. Birkin P.R, Offin D.G., Vian C.J.B , Leighton T.G., Maksimov A.O. Investigation of non-inertial cavitation produced by an ultrasonic horn. *J. Acoust. Soc. Am.* **130**(5). Part 2. 2011, 3297–3308 (DOI:10.1121/1.3650537).

17. Maksimov A.O. Acoustic manifestation of bubbles frozen in an ice sheet. *Acoustical Physics* **57**(3) 2011, 391–408 (DOI:10.1134/S1063771011030134).

18. Maksimov A.O. The acoustic manifestations of marine hydrocabon seeps. *Pacific oceanography* **5** (1), 2010, 88–95.

19. Maksimov A.O., Kaverin A.M. On the feature of nucleation innanoobjects. *Technical Physics Letters* **35** (9), 2009, 872–874 (DOI:10.1134/S1063785010090282).

20. Maksimov A.O., Sosedko E.V. Acoustic manifestations of gas hydrate shelled bubbles. *Acoustical Physics* **55** (6) 2009, 776–784 (DOI: 10.1134/S1063771009060128).

21. Maksimov, A.O. 2008 Hamiltonian description of bubble dynamics. *J. Exp. Theor. Phys.* **106** (2), 2008, 355–370 (DOI:10.1134/S1063776108020143).

22. Maksimov A.O., Leighton T.G. Self focusing of acoustically excited Faraday ripples on a bubble wall. *Physics Letters* A **372**, 2008, 3210–3216 (DOI:10.1016/j.physleta.2008.01.041).

23. Maksimov A.O. Viscous streaming from surface waves on the wall of acoustically-driven gas bubbles. *EUROPEAN JOURNAL OF MECHANICS – B/FLUIDS* **26**(1), 2007, 28–42 (DOI:1016/j.euromechflu.2006.03.008).

24. Maksimov A.O. Bubble maximum radius at scaling pulsation. *Tech. Phys. Letters.***31**(7), 2005, 7–13 (10.1134/1.1920368).

25. Maksimov A.O. Noise spectra of gas seeps. *Acoustical Physics* **51**(4), 2005, 435–442 (DOI: 10.1134/1.1983606).

26. Maksimov A.O. On the volume oscillations of a tethered bubble. *Journal of Sound & Vibration* **283**(3-5), 2005, 915–926 (DOI: 10.1016/j.jsv.2004.05.021).

27. Maksimov A.O. Spatial Distibution of Noise near Marine Hydrocarbone Seeps. *Transaction (Doklady) of the RAS / Earth Sciences* **397**, 2004, 712–716.

28. Maksimov A.O. Symmetry in bubble dynamics. *Communications in Nonlinear Science and Numerical Simulation* **9**(1), 2004, 83–92.

29. Maksimov A. O., Sosedko E. V. Peculiarities of the nonlinear dynamics of a gas bubble under the action of resonance and noise acoustic field . *Tech. Phys. Letters.* **29** (2), 2003, 102–104 (DOI: 10.1134/1.1558738).

30. Maksimov A. O. Symmetry of the Rayleigh equation and the analysis of nonlinear bubble oscillations in liquids . *Acoust. Physics,* **48**(6), 2002, 713–719 (DOI: 10.1134/1.1522039).

31. Maksimov A. O., Leighton T.G. Transient processes near the threshold of acoustical driven bubble shape oscillations. *ACUSTICA - ACTA ACUSTICA* **87**(3), 2001, 322–332.

32. Maksimov A. O. Spectrum of acoustic radiation caused by cavitation: Analytical model. *Acoustical Physics* **47** (1), 2001, 93–101 (DOI: 10.1134/1.1340085).

Book sections and periodicals issues

1. Maksimov A.O, Leighton T.G. Pattern formation on the wall of acoustically driven gas bubble // *NONLINEAR ACOUSTICS – State-of-the-Art and Perspectives*. Melville – New York: AIP, 2012. V. 1474. P. 135–138.

2. Maksimov A.O., Winkels K., Birkin P.R., Leighton T.G. Hopf bifurcation in acoustically excited Faraday ripples on a bubble wall. *In: NONLINEAR ACOUSTICS – FUNDAMENTALS AND APPLICATIONS*
Melville, N-Y.: AIP,
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, 2008, 229–232.

3. Maksimov A.O. Hamiltonian formalism in bubble dynamics. *In: NONLINEAR ACOUSTICS – FUNDAMENTALS AND APPLICATIONS*
Melville, N-Y.: AIP,
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, 2008, 58–61.

4. Maksimov A.O., Leighton T.G., Birkin P.R. Dynamics of a tethered bubble. *In:* Innovations in Nonlinear Acoustics, Melville, N-Y.: AIP,
838
, 2006,
512–515.

5. Maksimov A.O. Hamiltonian structure, symmetries and conservation laws in bubble. *In: Innovations in Nonlinear Acoustics*
, Melville, N-Y.: AIP,
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, 2006, 516–519.

6. Maksimov A. O. «Car-jam» effect in forming gas flare by ascending bubbles*. In: Marine technologies 2003,*
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Vladivostok . p. 157-164.

7. Maksimov A.O., Sosedko E.V. Dynamics of dissolution of ascending gas bubbles in a random flow / . *In: Marine technologies 2001.* **4***. Institute of Marine Technology Problems FEBRAS:* Vladivostok . p. 193-203.

8. Maksimov A.O., Sosedko E.V. On the peculiarities of parametric reception of low frequency signals in shallow water. *In: Marine technologies 2000.* **3***. Institute of Marine Technology Problems FEBRAS:*
Vladivostok . p. 207-225.

Conference papers

1. Maksimov A.O., Sosedko E.V. Transient processes near bi-stable gas bubble oscillations in liquid . In *Transactions of Far East Mathematical School-seminar of acad. E.V. Zolotova* .
Vladivostok , IACP 2000, pp. 77-78.

2. Maksimov A.O., Sosedko E.V. Anomalous bubble response to low frequency modulation of driving pressure. *In Proc. 2nd Intern. Conf. Control of Oscillations and Chaos (eds F.L. Chernousko, A.L. Fradkov) Proc. SPIE V* . 3,Washington : 2000. P. 548-551.

3. Maksimov A.O., Sosedko E.V. Evolution of back scattering from rising bubble plume. In: Ocean Acoustics (dedicated to the 85 th anniversary of L.M. Brekhovskikh) M.: GEOS, 2002. p. 237-241

4. Maksimov A.O. Symmetry in Bubble Dynamics. In: *Nonlinear Acoustics at the Beginning of the 21st Century* (Proceedings of the 16th International Symposium on Nonlinear Acoustics), edited by O.V. Rudenko and O.A. Sapozhnikov, MSU,
Moscow : 2002.
V. 2. P. 551-554.

5. Maksimov A.O., Leighton T.G. and Sosedko E.V. Nonlinear Transient Bubble Oscillations. In: *Nonlinear Acoustics at the Beginning of the 21st Century*(Proceedings of the 16th International Symposium on Nonlinear Acoustics), edited by O.V. Rudenko and O.A. Sapozhnikov, MSU, Moscow : 2002.
V. 2. P. 987-990.

6. Maksimov A.O., Sosedko E.V. Spectrum of acoustic radiation caused by cavitation. *Proceedings of the XIII Session of the Russian Acoustical Society*
, 25-29 August, 2003,
Moscow , GEOS, Vol. 1 pp. 17-20.

7. Maksimov A.O. "Car-jam" effect in rising bubble plume. *Proceedings of the XIII Session of the Russian Acoustical Society* ,
25-29 August, 2003,
Moscow , GEOS, Vol. 1 pp. 49-52.

8. Maksimov A.O., Sosedko E.V. Spectrum of Acoustic Cavitation. *Proceedings of the 5-th World Congress on Ultrasonics*
, Universite 6,
Paris : 2003. P. 593-596.

9. Maksimov A.O. Acoustics of marine hydrocarbon seeps. *Proceedings of the 5-th World Congress on Ultrasonics* , Universite 6, Paris : 2003. P. 229-232.

10. Maksimov A.O. "Car-jam" effect and concentration anomalies in rising bubble plume. *PI CES Scientific Report series 2004* / Proceedings of the 3rd Okhotsk Sea Workshop 4-6 June 2003 Vladivostok P. 67-70

11. Maksimov A.O. Dynamical symmetries in cavitation phenomena. *Proceedings of 18th International Congress on Acoustics* , Japan , 4-9 April, 2004. Kyoto : Institute of Noise Control, 2004. P. 3437-3440.

12. Maksimov A.O. Spectrum and spatial correlation of noise near marine hydrocarbon seeps. *Proceedings of the XV Session of the Russian Acoustical Society*, 15-18 November, 2004, Nizhniy Novgorod, GEOS, Vol. 2 pp. 363-366.

13. Maksimov A.O. Oscillation of a tethered bubble. *Proceedings of the XV Session of the Russian Acoustical Society* , 15-18 November, 2004, Nizhniy Novgorod, GEOS,Vol. 1, pp. 111-114.

14. Maksimov A.O. Effect of the shock wave envelope on cavitation bubble dynamics // Proc. Joint Workshop of Russian Acoustical Society and French Acoustical Society "High intensity acoustic waves in modern technological and medical applications", November 14-16, 2005, Moscow. M.: GEOS, 2005.

15. Maksimov A.O. Hamiltonian structure, symmetries and conservation laws in bubble dynamics // INNOVATIONS IN NONLINEAR ACOUSTICS Proceedings of 17th Int. Symposium on Nonlinear Acoustics (USA), 18-22 July, 2005. N-Y.: AIP, 2006. P. 516-519.

16. Maksimov A.O., Leighton T.G., Birkin P.R. Dynamics of a Tethered Bubble // INNOVATIONS IN NONLINEAR ACOUSTICS Proceedings of 17th Int. Symposium on Nonlinear Acoustics (USA), 18-22 July, 2005. N-Y.: AIP, 2006. P 512-515.

17. Maksimov A.O. Viscous streaming from acoustically driven gas bubbles // Better Life through Acoustics: Proceedings of IX Western Pacific Acoustics Conference (Korea), June 26-28, 2006. Seoul: The Acoustical Society of Korea, 2006. P. 119 (1-4).

18. Maksimov A.O. Structure of the shock wave emitted by optical breakdown in water with laser pulse // Better Life through Acoustics: Proceedings of IX Western Pacific Acoustics Conference (Korea), June 26-28, 2006. Seoul: The Acoustical Society of Korea, 2006. P. 112 (1-4)

19. Maksimov A., Leighton T., and Birkin P. Acoustic microstreaming induced by pattern of Faraday waves on a bubble wall // J. Acoust. Soc. Am. 2012. V. 131, No. 4. (ACOUSTICS 2012 HONG KONG) P. 3338.

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