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Education, degrees:

1982 Ph.D., Physics and Mathematics, from Andreev Acoustics Institute (AAI), Moscow, Russia

1978 M.S., Physics, from Moscow Institute of Physics & Technology (MIPT), Moscow, Russia

Employment:

2012 – present: Senior Principal Physicist, APL-UW, Seattle WA

2001 – 2012: Senior Physicist, APL-UW, Seattle WA

1986 – 2001: Senior Research Scientist, Andreev Acoustics Institute (AAI), Moscow, Russia

1981 – 1986: Research Scientist, AAI, Moscow, Russia

1978 – 1981: Postgraduate Research/Ph.D. Student, AAI/MIPT, Moscow, Russia

Visiting research/professorship:

- November 2011, November 2012: Visiting professor, Gubkin Russian State University of Oil and Gas, Moscow, Russia.
- October 2007 – March 2008, December 2004 – May 2005, and July – September 2000: Senior Scientist, CNRS/LMA, Marseille, France (Centre National de la Recherche Scientifique).
- 2000 – 2003: Adjunct Scientist, Department of Applied Ocean Physics & Engineering, Woods Hole Oceanographic Institution, Woods Hole MA.
- December 2000 – February 2001: Research Fellow at Tokai University, Japan.
- 1995 – 2001: Consultant/ Visiting Scientist, APL-UW.
- 1984 – 1994: Assistant Professor, Moscow Institute of Radiotechnology & Electronics & Automation

Research interests and areas of expertise:

Wave propagation and scattering in fluid and elastic continuous and discrete media with rough interfaces and volume heterogeneity, theoretical and numerical modeling of random processes and fields, signal processing and inversion techniques; environmental acoustics and applications to underwater reverberation and remote sensing, sea-bed and sea-ice characterization, marine ecology, detection and assessment of oil, gas, and gas hydrates, environmental monitoring and evaluation of risks related to offshore oil & gas exploration, production, and transportation.

Awards, Honors:

- 2011 – 2012: Gubkin-BP professorship, from British Petroleum and Gubkin Russian State University of Oil and Gas.
- 2001: elected Fellow of the Acoustical Society of America.
- 2000: Invitation Fellowship for Research at Tokai University, Japan, from Japan Society for the Promotion of Science.
- 1998: Award of Naval International Cooperative Opportunities in Science and Technology Program (NICOP), from ONR Europe.
- 1992 – 1994: International Science Foundation (Soros) awards for excellence in scientific publications and travel grants for international conferences.
- 1987: awarded rank of Senior Scientist, from Presidium of the USSR Academy of Sciences
- 1986: USSR Young Scientist Award (Lenin Komsomol Prize in Science and Technology).

Professional Societies/Membership: Acoustical Society of America (ASA), Russian Acoustical Society, European Acoustics Association.

Professional Service/Committees:

- 2013: research proposal reviewer, “mega-grant/P220” program
- 2011: research proposal reviewer, US-Israel Binational Science Foundation (BSF)
- 1998: International Congress on Acoustics (ICA'98) Scientific Advisory Committee
- 1996 – present: ASA Technical Committees on Underwater Acoustics and Acoustical Oceanography
- Reviewer at The Journal of the Acoustical Society of America, IEEE Journal of Oceanic Engineering, Acoustical Physics, and others

Publications: Total number of publications is more than 100, including articles in major peer-reviewed journals in the field, such as The Journal of the Acoustical Society of America, IEEE Journal of Oceanic Engineering, Marine Geology, Acoustical Physics, Soviet Physics-Acoustics, Oceanology, and others, see apl.uw.edu/ani

List of selected publications

A. Articles in peer-reviewed journals:

- A. N. Ivakin (2012), “Sound scattering from the seafloor: results of recent theoretical and experimental research”, *Acoustical physics*, **58**(2), pp.187-191.
- D.R. Jackson, R.I. Odom, M.L. Boyd, and A.N. Ivakin (2010), “A geoacoustic bottom interaction model (GABIM)”, *IEEE J. Ocean. Eng.*, **35**(3), pp. 603-617. / corrections: *IEEE J. Ocean. Eng.*, **36**(1), p. 373.
- J.-P. Sessarego, A.N. Ivakin and D. Ferrand (2008), “Frequency dependence of phase velocity, group velocity and attenuation in water-saturated sand: Laboratory experiments”, *IEEE J. Ocean. Eng.*, **33**(4), pp. 359-366.
- J.-P. Sessarego, R. Guillermin and A.N. Ivakin (2008), “High frequency sound reflection by water saturated sediment interfaces”, *IEEE J. Ocean. Eng.*, **33**(4), pp. 375-385.
- Ivakin A.N. and J.-P. Sessarego (2007), “High frequency broad band scattering from water-saturated granular sediments: Scaling effects”, *J. Acoust. Soc. Amer. Express Letters*, **122**(5), pp. EL165-EL171.
- Briggs K.B., Williams K.L., Jackson D.R., Jones C.D., Ivakin A.N. and Orsi T.H. (2002), “Influence of fine-scale sedimentary structure on high-frequency acoustic scattering”, *Marine Geology*, **182**, 141-159.
- Ivakin A.N. (2001), “Models of scattering for remote acoustic sensing of the seafloor”, in, *Proceedings of the Institute of Acoustics*, v.23: Part 2, pp. 268-275.
- Ivakin A.N. (1998), “A unified approach to volume and roughness scattering”, *J. Acoust. Soc. Am.*, **103**(2), 827-837.
- Ivakin A.N. and Jackson D.R. (1998), “Effects of shear elasticity on sea bed scattering: Numerical examples”, *J. Acoust. Soc. Am.*, **103**(1), 346-354.
- Jackson D.R. and Ivakin A.N. (1998), “Scattering from elastic sea beds: First-order theory”, *J. Acoust. Soc. Am.*, **103**(1), 336-345.
- Ilyin A.V., Ivakin A.N. and Lysanov Yu.P. (1995), “On manganese nodule distribution at a study area in the Clarion-Clipperton region”, *Oceanology*, **34**(6), 835-838.

- Egerev S.V., Ivakin A.N., Ovchinnikov O.B. and Pashin A.E. (1995), "Optico-acoustic transformation in shallow water: Narrow-band analysis of bottom reverberation", *Acoustical physics*, **41**(2), 245-248.
- Ivakin A.N., Il'in A.V. and Lysanov Yu.P. (1994), "Geoacoustic inhomogeneities of deep ocean floor", *Oceanology*, **33**(4), 461-463.
- Ivakin A.N. (1994), "Reverberation in a plane randomly inhomogeneous waveguide under narrow-band acoustic probing", *Acoustical physics*, **40**(3), 426-427.
- Ivakin A.N. (1994), "Sound scattering by rough interface and volume inhomogeneities of the sea bottom", *Acoustical Physics*, **40**(3), 427-428.
- Ivakin A.N. (1994), "Modelling of sound scattering by the sea floor", *J. de Physique IV*, Colloque C5, suppl. au *J. Phys. III*, v. 4, pp.C5-1095--1098.
- Bunchuk A.V. and Ivakin A.N. (1994), "Remote acoustic monitoring of manganese nodules on the ocean bottom", *J. de Physique IV*, Colloque C5, suppl. au *J. Phys. III*, v.4, pp.C5-1305--1308.
- Egerev S.V., Ivakin A.N., Ovchinnikov O.B. and Pashin A.E. (1994), "Laser induced underwater acoustic source for remote sea-bed sensing", *J. de Physique IV*, Colloque C5, suppl. *J. Phys. III*, v.4, pp.C5-351--354.
- Ivakin A.N. (1990), "Sound scattering by inhomogeneities of an elastic half-space", *Soviet Physics-Acoustics*, **36**(4), 377-380.
- Bunchuk A.V. and Ivakin A.N. (1989), "Energy characteristics of an echo signal from discrete scatterers on the ocean bottom", *Soviet Physics-Acoustics*, **35**(1), 5-11.
- Yefimov A.V., Ivakin A.N. and Lysanov Yu.P. (1988), "A geoacoustic model of sound scattering by the ocean bottom based on deep sea drilling data", *Oceanology*, **28**(3), 290-293.
- Yefimov A.V., Ivakin A.N. and Lysanov Yu.P. (1988), "Spectral characteristics of inhomogeneities of sediments according to deep-sea drilling data", *Doklady Akademii Nauk SSSR*, **301**(3), 710-712.
- Ivakin A.N. and Lysanov Yu.P. (1988), "Determination of the structure of marine sediments from acoustic sensing data", *Soviet Physics-Acoustics*, **34**(1), 114.
- Efimov A.V. and Ivakin A.N. (1987), "Sound scattering by inhomogeneities of layered sediments", *Sudostroitel'naya promyshlennost, Akustika*, **2**, 24-31, (in Russian).
- Ivakin A.N. (1986), "Sound scattering by random inhomogeneities of stratified ocean sediments", *Soviet Physics-Acoustics*, **32**(6), 492-496.
- Ivakin A.N. (1986), "Acoustic statistical models for ocean bottoms in shallow water", *Sudostroitel'naya promyshlennost, Akustika*, **1**, 3-10, (in Russian).
- Ivakin A.N. and Lysanov Yu.P. (1985), "Determination of certain parameters of marine sediments from acoustic sensing data", *Soviet Physics-Acoustics*, **31**(6), 493-494.
- Volovov V.I., Efimov A.V., and Ivakin A.N. (1985), "Reradiation of a spherical sound wave by a continuously layered bottom", *Soviet Physics-Acoustics*, **31**(5), 355-357.
- Ivakin A.N. and Lysanov Yu.P. (1985), "Backscattering of sound from an inhomogeneous bottom at small grazing angles", *Soviet Physics-Acoustics*, **31**(3), 236-237.
- Ivakin A.N. (1983), "Sound scattering by random volume inhomogeneities and small surface roughness of an underwater ground", *Voprosy sudostroeniya, Akustika*, **17**, 20-25, (in Russian).
- Volovov V.I. and Ivakin A.N. (1982), "Influence of the sound-velocity gradient in a sediment on reflection from the ocean bottom", *Soviet Physics-Acoustics*, **28**(5), 414-414.
- Ivakin A.N. and Lysanov Yu.P. (1981), "Underwater sound scattering by volume inhomogeneities of a bottom medium bounded by a rough surface", *Soviet Physics-Acoustics*, **27**(3), 212-215.
- Ivakin A.N. and Lysanov Yu.P. (1981), "Theory of underwater sound scattering by random inhomogeneities of the bottom", *Soviet Physics-Acoustics*, **27**(1), 61-64.
- Ivakin A.N. (1981), "Sound scattering by multi-scale bottom inhomogeneities", *Oceanology*, **21**(1), 26-27.
- Volovov V.I. and Ivakin A.N. (1980), "Reflection of sound from the bottom with gradients of sound velocity and density", *Soviet Physics-Acoustics*, **26**(2), 194-199.

B. Editor-referred articles and chapters in books:

- A.N. Ivakin (2011), "Remote characterization of random scatterer distributions in stratified marine environment" (invited), In *Proc. 4th Internat. Conf. Underwater Acoustic Measurements: Technology and Results (UAM2011)*, J.S. Papadakis and L. Bjorno (Eds), pp. 1615-1622.
- A.N. Ivakin (2010), "Discrete scattering in stratified marine sediments: A modeling approach and application to a shelly sand-mud environment", in, *Proc. Tenth European Conference on Underwater Acoustics (ECUA2010)*, T. Akal (Ed), Istanbul, Turkey, 5-9 July 2010, vol.3, pp.1432-1439.
- B.T. Hefner, D.R. Jackson, A.N. Ivakin, D. Tang (2010), "High frequency measurements of backscattering from heterogeneities and discrete scatterers in sand sediments", in, *Proc. Tenth European Conference on Underwater Acoustics (ECUA2010)*, T. Akal (Ed), Istanbul, Turkey, 5-9 July 2010, vol.3, pp.1386-1390.
- Ivakin A.N. (2008), "Modeling of narrow-band normal-mode reverberation in shallow water", in, *International Symposium on Underwater Reverberation and Clutter*, P.L. Nielsen, C.H. Harrison, and J.-C. Le Gac (Eds), NURC, Italy, pp.55-62.
- Ivakin A.N. (2005), "High frequency scattering from sandy sediments: roughness vs discrete inclusions", in, *Boundary Influences in High Frequency Shallow Water Acoustics*, N.G. Pace and P. Blondel (Eds), University of Bath, UK, pp.185-192.
- Ivakin A.N. and Jackson D.R. (2004), "Near-Bottom Bistatic Measurements Technique for Acoustic Classification of the Sediment and Buried Objects", in, *The Application of Recent Advances in Underwater detection and survey Techniques to Underwater Archeology*, T. Akal, R.D. Ballard, and G.F. Bass (Eds), Uluburun Publishing, Turkey, pp.183-190.
- Ivakin A.N. (1997), "A unified model for seabed volume and roughness scattering", in, *High Frequency Acoustics in Shallow Water*, N. Pace, E. Pouliquen, O. Bergem, and A.P. Lyons (Eds), SACLANT Center, La Spezia, Italy, pp.267-273.
- Ivakin A.N. (1997), "First-order model for bottom volume and roughness scattering", in, *Shallow-Water Acoustics*, R.H. Zhang and J.X. Zhou (Eds), China Ocean Press, Beijing, pp.359-364.
- Ivakin A.N. (1994), "Sound scattering by rough interfaces of layered media", in, *Third International Congress on Air-&Structure- Borne Sound and Vibration*, M.J.Crocker (Ed), International Publications, Auburn University, AL, v.3, pp.1563-1570.
- Ivakin A.N. (2004), "Scattering from discrete inclusions in marine sediments", in, *Proc. Seventh European Conference on Underwater Acoustics (ECUA2004)*, D.G. Simons (ed.), Delft, The Netherlands, 5-8 July 2004, v1., pp.625-630.
- Ivakin A.N. (1992), "Sound backscattering from ocean bottom", in, *Second International Congress on Recent Developments in Air-&Structure- Borne Sound and Vibration*, M.J.Crocker and P.K.Raju (Eds), Auburn University, AL, v.3, pp.1087-1092.
- Ivakin A.N. (1992), "Mean acoustic field scattered in a layer with random volume inhomogeneities", in, *Acoustics of Inhomogeneous Media (Dynamics of continuous media 105)*, V.K. Kedrinsky (Ed), Novosibirsk, pp. 179-184, (in Russian).
- Ivakin A.N. (1992), "Sound scattering from ocean bottom: theory and experiment", in, *European Conference on Underwater Acoustics*, M.Weydert (Ed), Elsevier Applied Science, London, pp.521-524.
- Ivakin A.N., 2000, "High frequency scattering from heterogeneous seabeds", in, *Proc. Fifth European Conference on Underwater Acoustics (EQUA2000)*, M.E. Zakharia, P. Chevret, and P. Dubail (Eds.) Lyon, France, 10-13 July 2000, v.2, pp. 1241-1246.
- Ivakin A.N. (1989), "Backscattering of sound by the ocean bottom. Theory and experiment", in, *Acoustics of ocean medium*, L.M. Brekhovskikh and I.B. Andreeva (Eds), Moscow: Nauka, pp.160-169, (in Russian).

C. Selected conference proceedings

- A.N. Ivakin (2012), "Backscattering techniques for remote acoustic detection and characterization of oil and gas in marine environment", *Workshop on Innovative Physical Methods for Marine Research*, Haifa, Israel, 11-13 November, 2012.
- A.N. Ivakin (2012), "Modeling of acoustic backscatter for remote detection and characterization of oil and gas in marine environment", in, *Proc. 11th European Conference on Underwater Acoustics (ECUA2012)*, Edinburg, UK, 2-6 July 2012, pp.1202-1209.
- D.R. Jackson, B.T. Hefner, A.N. Ivakin, G. Wendelboe (1912), "Seafloor characterisation using physics-based inversion of multibeam sonar data", in, *Proc. 11th European Conference on Underwater Acoustics (ECUA2012)*, Edinburg, UK, 2-6 July 2012, pp.1571-1576.
- D.R. Jackson, A.N. Ivakin (1912), "Modeling issues in scattering by layered seabeds", in, *Proc. 11th European Conference on Underwater Acoustics (ECUA2012)*, Edinburg, UK, 2-6 July 2012, pp.1180-1187.
- R.E. Moritz, A.N. Ivakin (1912), "Retrieving sea-ice thickness from ULS echoes: Methods and data analysis", in, *Proc. 11th European Conference on Underwater Acoustics (ECUA2012)*, Edinburg, UK, 2-6 July 2012, pp.1535-1542.
- A.N. Ivakin, A.B. Zolotukhin (1912), "Energy exploration and the environment in the Arctic", in, *Second Skolkovo Tech Research Center Proposers Conference Abstracts*, Skolkovo Tech, Moscow Region, Russia, 9-10 July 2012, p.35.
- A. N. Ivakin (2011), "Sound scattering from the ocean bottom: recent theoretical and experimental results", In *Ocean Acoustics*, Proc. 13th L.M. Brekhovskikh's conference, Moscow: GEOS, pp.118-125 (in Russian).
- Ivakin A.N. (1998), "Models of seafloor roughness and volume scattering", in, *Oceans '98 conference Proceedings*, 28 Sept.-1 Oct., Nice - France, v.1, pp. 518-521.
- Jackson D.R. and Ivakin A.N. (1998), "A practical model for high-frequency seabed bistatic scattering strength" (invited), in, *Proc. 16th Internat. Congress on Acoustics and 135th Meeting of Acoust. Soc. Amer.*, Seattle, WA, 20-26 June, v.4, pp. 2693-2694.
- Ivakin A.N. (1998), "Models of volume and roughness scattering in stratified seabeds ", in *Proc. 16th International Congress on Acoustics and 135th Meeting of Acoust. Soc. Amer.*, Seattle, WA, 20-26 June, v.4, pp. 2698-2699.
- Ivakin A.N. (1998), "Models for acoustic scattering from the ocean bottom: State of the art", in, *Ocean Acoustics*, L.M. Brekhovskikh School-Seminar, Moscow: GEOS, pp.84-91 (in Russian), (online <http://rav.sio.rssi.ru/shkola/19.html>).
- A.N. Ivakin (1989), "On reflection of spherical waves by the ocean bottom", in, *III All-Union School-Seminar on Methods of Hydrophysical Research*, p.77, (in Russian).
- Bunchuk A.V. and Ivakin A.N. (1987), "Reflection and scattering of sound waves from bottom pebbles", in, *III Congress of Soviet Oceanologists, Physics and Chemistry of Ocean / Acoustics and Optics of Ocean*, pp.30-31 (in Russian).
- Ivakin A.N. and Lysanov Yu.P. (1986), "A correlation method of separation of volume and surface scattering of waves", in, *XIV All-Union School-Seminar on Statistical Hydroacoustics*, Moscow: Andreyev Acoustics Institute, pp.45-48, (in Russian).
- Bunchuk A.V. and Ivakin A.N. (1985), "Azimuthal anisotropy of sound scattering from the ocean bottom in shallow water", in, *V Seminar on Acoustic and Statistical Models of the Ocean*, Moscow: Andreyev Acoustics Institute, pp.47-51 (in Russian).
- Ivakin A.N. (1982), "Multiple scattering by random inhomogeneities in seabed sediments", in, *Aerophysics and geo-space research*, Moscow, MPTI, pp.96-98 (in Russian).

D. Selected technical reports

- A.N. Ivakin (2009), "Sediment Particle Characterization for Acoustic Applications: Coarse Content, Size and Shape Distributions in a Shelly Sand/Mud Environment", Final Report 31 March 2009, APL-UW, <http://www.stormingmedia.us/95/9537/A953715.html>
- A.N. Ivakin (2009), "Geoacoustic Modeling: High-Frequency Scattering from Heterogeneous Rough Sea Beds at Shallow Grazing Angles (extension)", Report OA-FY 2009, APL-UW, <http://www.onr.navy.mil/reports/FY09/oaivakin.pdf>
- A.N. Ivakin (2007), "Updates for Bottom Reverberation Codes", Final Report 10 April 2007, APL-UW, <http://www.dtic.mil/dtic/tr/fulltext/u2/a469439.pdf>
- A.N. Ivakin (2006), "Remote Sensing Technique for Geoacoustic Characterization of Heterogeneous Marine Sediments", Final Report 5 October 2006, APL-UW, <http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA464262>

E. Selected published abstracts and invited presentations

- A.N. Ivakin (2011), "Geoacoustic modeling based on sediment particle analysis", *J. Acoust. Soc. Amer.*, **129**(4), Pt.2, p.2390 (A).
- A.N. Ivakin and D.R. Jackson (2011), "Wave scattering and interaction in elastic sea beds", *J. Acoust. Soc. Amer.*, **129**(4), Pt.2, p.2426 (A).
- A.N. Ivakin (2011), "Modeling for remote acoustic characterization of gas hydrates" (invited), *J. Acoust. Soc. Amer.*, **129**(4), Pt.2, p.2653 (A).
- A.N. Ivakin (2010), "Acoustics as a potential tool for remote evaluation of impact of oil spill on the seabed habitat" (invited), *J. Acoust. Soc. Amer.*, **128**(4), Pt.2, p.2384 (A).
- A.N. Ivakin (2010), "Scattering from inclusions in stratified marine sediments", *J. Acoust. Soc. Amer.*, **128**(4), Pt.2, p.2327 (A).
- J.-P. Sessarego, R. Guillermin and Ivakin A.N. (2010), "High Frequency sound Speed and Attenuation Measurements in Water-Saturated Glass Beads of different Sizes: Laboratory Experiments", in, *Proc. Tenth European Conference on Underwater Acoustics (ECUA2010)*, Istanbul, Turkey, 5-9 July 2010, paper 047, vol.3, p.1240.
- A.N. Ivakin (2009), "High frequency scattering from inclusions in marine sediments: Data/model comparisons", *J. Acoust. Soc. Amer.*, **125**(4), Pt.2, p.2541 (A).
- J.-P. Sessarego, R. Guillermin, and A.N. Ivakin (2009), "High-frequency acoustic properties of water-saturated sediments: Laboratory study", *J. Acoust. Soc. Amer.*, **125**(4), Pt.2, p.2746-2747 (A).
- Ivakin A.N. (2008), "High frequency scattering from discrete inclusions in marine sediments" (invited), *J. Acoust. Soc. Amer.*, **123**(5), Pt.2, p.3601 (A). / *Proc. Ninth European Conference on Underwater Acoustics (ECUA2008)*, paper 2443.
- Ivakin A.N. and J.-P. Sessarego (2008), "High frequency propagation in and scattering from water-saturated granular sediments: Laboratory study" (invited), *J. Acoust. Soc. Amer.*, **123**(5), Pt.2, p.3601 (A). / *Proc. Ninth European Conference on Underwater Acoustics (ECUA2008)*, paper 2475.
- J.-P. Sessarego, Ivakin A.N., and R. Guillermin (2008), "Backscattering from an elastic target near a water-sediment interface at oblique incidence: First results of tank experiments" (invited), *J. Acoust. Soc. Amer.*, **123**(5), Pt.2, p.3946 (A). / *Proc. Ninth European Conference on Underwater Acoustics (ECUA2008)*, paper 2370.
- Ivakin A.N. (2007), "A model of narrow-band normal mode shallow water reverberation", *J. Acoust. Soc. Amer.*, **122**(5), Pt.2, p.3091-3092 (A).
- Ivakin A.N. and J.-P. Sessarego (2007), "High frequency scattering from water-saturated granular sediments: Scaling effects", *J. Acoust. Soc. Amer.*, **122**(5), Pt.2, p. 2973-2974 (A).
- Ivakin A.N., J.-P. Sessarego and R. Guillermin (2006), "Laboratory study of high frequency scattering from water-saturated granular sediments", *J. Acoust. Soc. Amer.*, **120**(5), Pt.2, p.3144 (A).

- Ivakin A.N., J.-P. Sessarego and P. Sanchez, (2005), "Laboratory study of high frequency scattering from water-saturated sandy sediments", *J. Acoust. Soc. Amer.*, **117**(4), Pt.2, p.2433 (A).
- Ivakin A.N., Jackson D.R. and Tang D., (2003), "Separating volume and roughness components of scattering using spatial coherence filtering", *J. Acoust. Soc. Amer.*, **114**(4), Pt.2, p.2301-2302 (A).
- Ivakin A.N. (2003), "Models of discrete scattering in marine sediments", *J. Acoust. Soc. Amer.*, **113**(4), Pt.2, p.2320 (A).
- Jackson D.R., Williams K.L., Ivakin A.N. and Thorsos E.I., (2003), "Use of a buried array to characterize sediment volume scattering", *J. Acoust. Soc. Amer.*, **113**(4), Pt.2, p.2318 (A).
- Ivakin A.N. (2002), "Models of acoustic scattering from continuous and discrete heterogeneity in marine sediments", *J. Acoust. Soc. Amer.*, **112**(5), Pt.2, p.2423 (A).
- Ivakin A.N. (2001), "Acoustic scattering from stratified marine sediments", *J. Acoust. Soc. Amer.*, **110**(5), Pt.2, p.2661-2662 (A).
- Ivakin A.N. (2001), "Scattering from stratified sediments", *J. Acoust. Soc. Amer.*, **109**(5), Pt.2, p.2300-2301 (A).
- Ivakin A.N. (2000), "Effects of the top transition layer in marine sediments on seabed roughness and volume scattering", *J. Acoust. Soc. Amer.*, **108**(5), Pt.2, p.2616-2617 (A).
- Ivakin A.N. (2000), "High frequency scattering from heterogeneous marine sediments", *J. Acoust. Soc. Amer.*, **107**(5), Pt.2, p.2921 (A).
- Ivakin A.N. (1999), "Multiple scattering in marine sediments with volume inhomogeneities", *J. Acoust. Soc. Amer.*, **106**(4), Pt.2, p.2217-2218 (A).
- Ivakin A.N. (1998), "Seafloor scattering: Modeling and analysis of classification clues", *J. Acoust. Soc. Amer.*, **105**(2), Pt.2, p.1266 (A).
- Ivakin A.N. (1998), "Models of volume and roughness scattering in stratified seabeds", *J. Acoust. Soc. Amer.*, **103**(5), Pt.2, p.3060 (A).
- Ivakin A.N. (1997), "Effect of cross correlation between different types of medium inhomogeneities on seabed scattering", *J. Acoust. Soc. Amer.*, **102**(5), Pt.2, p.3216 (A).
- Ivakin A.N. (1996), "A wide frequency range model for seabed scattering", *J. Acoust. Soc. Amer.*, **100**(4), Pt.2, p.2798 (A).
- Ivakin A.N. and Jackson D.R. (1996), "High-frequency bistatic scattering from elastic seafloors", *J. Acoust. Soc. Amer.*, **99**(4), Pt.2, p.2500 (A).
- Ivakin A.N. (1996), "Moderate-frequency scattering from layered sediments over an elastic basement", *J. Acoust. Soc. Amer.*, **99**(4), Pt.2, p.2500 (A).
- Ivakin A.N. (1995), "A unified perturbation approach to volume and roughness scattering", *J. Acoust. Soc. Amer.*, **98**(5), Pt.2, p.2988 (A).
- Ivakin A.N. (1995), "Acoustic scattering by marine sediments with irregularities of different types", *J. Acoust. Soc. Amer.*, **97**(5), Pt.2, p.3387 (A).
- Ivakin A.N. and Jackson D.R. (1995), "Effects of shear elasticity on high-frequency bottom scattering", *J. Acoust. Soc. Amer.*, **98**(5), Pt.2, p.2989 (A).
- Ivakin A.N. (2004), "Mechanisms of seafloor scattering: Roughness vs discrete inclusions" (invited), *J. Acoust. Soc. Amer.*, **116**(4), Pt.2, p.22575 (A).
- Ivakin A.N. (1994), "Acoustic characterization of marine sediments: State of the art" (invited), *J. Acoust. Soc. Amer.*, **96**(5), Pt.2, p.3223 (A).
- Bunchuk A.V. and Ivakin A.N. (1994), "Remote acoustic sensing of manganese nodules on the ocean bottom", *J. Acoust. Soc. Amer.*, **95**(5), Pt.2, p.2802-2803 (A).
- Ivakin A.N. (1994), "Sound scattering by rough interfaces and volume inhomogeneities of a layered seabed", *J. Acoust. Soc. Amer.*, **95**(5), Pt.2, p.2884-2885 (A).
- Egerev S.V., Ivakin A.N., Ovchinnikov O.B., and Pashin A.E. (1994), "Laser-induced underwater acoustic source for remote sensing of sea floor", *J. Acoust. Soc. Amer.*, **95**(5), Pt.2, p.3021 (A).

F. Thesis

Ivakin A.N. (1981), “Sound scattering and reflection by inhomogeneities of a seabed”, Ph.D. thesis, Moscow: Andreev Acoustics Institute, 169p., (in Russian).

Ivakin A.N. (1978), “Sound reflection from the ocean floor”, M.Sc. thesis, Moscow: Moscow Institute of Physics and Technology, (in Russian).

G. Other selected publications

L. Guillon, J.-P. Sessarego, J. Sageloli, and A. Ivakin, «Rétrodiffusion par les fonds marins : mesures en laboratoire et comparaison théorie/expérience», *Actes des 5emes Journées d'Acoustique Sous-Marine*, IFREMER, Brest, France, 2000.

A.N. Ivakin (1994), “Reverberation in a plane randomly inhomogeneous waveguide under narrow-band acoustic probing” and “Sound scattering by rough interface and volume inhomogeneities of the sea bottom”, in M.Yu.Galaktionov (ed.), *Aspects récents de l'acoustique sous-marine russe*, Eds de l'IFREMER, Plouzané, 1994.