

Michael S. Zhdanov
Distinguished Professor of Geophysics

March 2022

POSITION: Distinguished Professor
Department of Geology and Geophysics, University of Utah.

EDUCATION: Moscow Gubkin State University of Oil and Gas 1968 M. Sc.
(Geophysics)
Moscow State University 1969 M. Sc. (Mathematics)
Moscow State University 1970 Ph.D. (Physics, Mathematics)
Moscow State University 1978 Doctor of Sciences
(Physics, Mathematics)

General Background

Dr. Michael Zhdanov joined the University of Utah as a full professor in 1993 and has been appointed a director of Consortium for Electromagnetic Modeling and Inversion (CEMI) since 1995. Dr. Zhdanov was elected to the rank of Distinguished Professor in 2016.

Dr. Zhdanov's research contributed primarily to geophysical inverse theory and its application to explore the Earth. Professor Zhdanov developed a fundamentally new technique of regularized focusing inversion and imaging of deep geological structures with sharp geometrical boundaries, which are the main target in exploration. Dr. Zhdanov also introduced a new approach to joint inversion of multiphysics data based on the novel concept of Gramian spaces of rock physics parameters. The regularized inversion methods developed by Professor Zhdanov are widely used in geophysical applications and in many other fields requiring the inversion of the observed data, e.g., in medical imaging, nondestructive testing, electrical engineering, meteorology, and radiophysics. This is reflected in a large number of citations to Zhdanov's fundamental monograph on inversion theory, published in 2002, which was already cited more than 1200 times.

The pioneering work of Dr. Zhdanov on the 3D inversion of large-scale airborne electromagnetic survey data using a concept of moving sensitivity domain resulted in a paradigm change in the interpretation of the airborne surveys by rigorously producing 3D images of the subsurface geology. Dr. Zhdanov also invented a principally new method of imaging the Earth's interior based on electromagnetic holography and potential field migration. In addition, Dr. Zhdanov developed new mathematical models that predict the interaction of induced electromagnetic fields with materials in the Earth - generalized effective-medium theory of induced polarization (GEMTIP).

The results of Prof. Zhdanov's research found a wide application in the industry through the industry-sponsored CEMI Consortium (<http://www.cemi.utah.edu/>). CEMI is a research and educational program in non-seismic geophysical methods at the University of Utah. CEMI has been supported for almost three decades by major national and international oil, gas, and mining corporations, geophysical exploration companies and research centers, and agencies from around the globe (including BP, BGP, BHP, ENI, ExxonMobil, Haliburton, Hess, Mindeco, JOGMEC, PGS, Saudi Aramco, Schlumberger, Shell, Statoil, Sumitomo, Petrobras, PGS, Rio Tinto, Total,

among others). The work of Professor Zhdanov helped to promote theoretical and applied research and development and international cooperation in this field of geophysics.

Dr. Zhdanov is the author of more than 400 peer-reviewed papers, including more than twenty monographs published in English, Russian and Chinese, and two dozen patents. The contributions of Dr. Zhdanov in the theory of electromagnetism and the theoretical and applied geophysics were recognized nationally and internationally by his election as a Full Member of the Russian Academy of Natural Sciences in 1991 and as a Fellow of Electromagnetics Academy, USA, in 2002. In addition, in 2013, Professor Zhdanov received one of the highest awards of the International Society of Exploration Geophysicists, the Honorary Membership Award, in recognition of his distinguished contributions to exploration geophysics.

During his tenure at Moscow Gubkin State University, Professor Zhdanov supervised 25 graduate students to completion, 12 of whom earned Ph.D. degrees. At the University of Utah, he has mentored nearly 60 graduate students, including 24 Ph. D.s, bringing his career total to more than 80 graduate students. Many of his former students have become leaders in academia and industry worldwide in promoting exploration geophysics.

Employment

2016 - present	Department of Geology and Geophysics, University of Utah, Distinguished Professor.
1993 - 2016	Department of Geology and Geophysics, University of Utah, Full Professor.
1992 to 1993	Colorado School of Mines, Visiting Professor.
1990 to 1992	Geoelectromagnetic Research Institute, USSR Academy of Sciences, Founder and Director.
1978 to 1990	Institute of Terrestrial Magnetism, Ionosphere and Radio Wave Propagation (IZMIRAN), USSR Academy of Sciences, Head of the Department of Deep Electromagnetic Study, Deputy Director.
1970 to 1992	Moscow Gubkin State University of Oil and Gas, Department of Geophysics, Assistant Professor, Associate Professor, Full Professor.

Teaching

1970 - 1976	Assistant Professor of Geophysics, Moscow Gubkin State University of Oil and Gas, Department of Geophysics.
1976 - 1982	Associate Professor of Geophysics, Moscow Gubkin State University of Oil and Gas, Department of Geophysics.
1982 - 1992	Full Professor of Geophysics, Moscow Gubkin State University of Oil and Gas, Department of Geophysics.
1992 - 1993	Visiting Professor, Colorado School of Mines.
1993 - 2016	Full Professor, Department of Geology and Geophysics, University of Utah.
2016 - present	Distinguished Professor, Department of Geology and Geophysics, University of Utah.

- 1972 - 1993** Supervised research of about 25 graduate students. 12 graduate students received Ph.D. degree under his supervision in 1979 - 1993.
- 1993 - 2021** Supervised research of nearly 60 graduate students in M.Sc. and Ph.D. programs at the University of Utah. Thirty-five graduate students received a M. Sc. degree and twenty four received a Ph.D. degree under his supervision from 1995 -2021 in the University of Utah.

Awards and Honors

- 2020** Collett Distinguished Visiting Lecturer Award of KEGS (Canadian Exploration Geophysicists Society)
- 2016** Distinguished Professor, The University of Utah
- 2013** Honorary Membership of the Society of Exploration Geophysicists.
- 2009** The University of Utah Distinguished Scholarly Award.
- 2003** Outstanding Faculty Research Award, Department of Geology and Geophysics, University of Utah.
- 2002** Fellow of Electromagnetics Academy, USA.
- 2000** Honorary Award of the Russian Academy of Natural Sciences for Outstanding Achievements in the Development of Science and Technology.
- 1997** Honorary Professor of China National Center of Geological Exploration Technology.
- 1994 - 1995** Distinguished Faculty Teaching Award, Department of Geology and Geophysics, University of Utah.
- 1991** Elected Full Member, Russian Academy of Natural Sciences.
- 1991** Lansdown Visiting Professor, University of Victoria, Canada.
- 1990** Honorary degree of Gauss Professor, Gettingen Academy of Sciences, Germany.
- 1984** Diploma of Full Professor of Geophysics, Moscow Gubkin State University of Oil and Gas.

Professional memberships

Society of Exploration Geophysicists, USA

American Geophysical Union

Australian Society of Exploration Geophysicists

European Association of Geoscientists and Engineers

Society of Professional Well Log Analysts

Professional Service

2019-2020	Chairman of the Organizing Committee of the Third European Conference on Mining Geophysics (EAGE, Belgrade/Amsterdam, 2020).
2017-2018	Chairman of the Organizing Committee of the Second European Conference on Mining Geophysics (EAGE, Porto, 2018).
2016	Chairman of the Organizing Committee of the First European Conference on Mining Geophysics (EAGE, Barcelona, 2016).
2014-2020	Elected Member of Governing Committee of Oil and Gas Division of European Association of Geoscientists and Engineers (EAGE)
2011	Technical Committee Chairman, EM Section of the 81 st Annual Meeting of the Society of Exploration Geophysicists, San Antonio, Texas.
2010	Technical Committee Chairman, EM Section of the 80 th Annual Meeting of the Society of Exploration Geophysicists, Denver, Colorado.
2009	Technical Committee Chairman, EM Section of the 79 th Annual Meeting of the Society of Exploration Geophysicists, Houston, Texas.
2007	Co-Chairman, First International Scientific Nobel Conference "Innovative Electromagnetic Methods of Geophysics," July 2007, Salekhard, Russia.
2007	Member, Organizing Committee of the Third International Workshop on Active Geophysical Monitoring.
2005	Member, Program Committee of the Second International Workshop on Active Geophysical Monitoring.
1999	Co-chairman of the Organizing Committee of the Second International Symposium on 3-D Electromagnetics, University of Utah, Salt Lake City, 1999.
1991	Chairman of the Organizing Committee of the All Union Congress on Geomagnetism, Suzdal.
1984 to 1991	Member, Geophysical Committee of Russia.
1988	Chairman of the Local Organizing Committee of the 9th Electromagnetic Induction Workshop of IAGA (Dagomys).
1984 to 1987	Vice-chairman of Division I, International Association of Geomagnetism and Aeronomy (IAGA).
1980 to 1987	Member of the Working Group I.3 International Association of Geomagnetism and Aeronomy (IAGA).

Graduate Student Supervision

Supervisory Committee Chairman:

A. Completed

1. Oleg Portniaguine M.Sc. degree, 1995
2. Patricia de Lugao Ph.D. degree, 1996

3.	Efthimios Tartaras	M.Sc. degree, 1997
4.	William Doerner	M.Sc. degree, 1997
5.	David Johnson	M.Sc. degree, 1997
6.	Sheng Fang	Ph.D. degree, 1998
7.	Weidong Li	M.Sc. degree, 1998
8.	Ertan Peksen	M.Sc. degree, 1999
9.	Darrell Hall	M.Sc. degree, 1999
10.	Oleg Portniaguine	Ph.D. degree, 1999
11.	Ge Zhang	Ph.D. degree, 2000
12.	Efthimios Tartaras	Ph.D. degree, 2001
13.	Gabor Hursan	Ph.D. degree, 2001
14.	Weidong Li	Ph.D. degree, 2001
15.	Souvik Mukherjee	M.Sc. degree, 2002
16.	Timothy Sodergren	M.Sc. degree, 2002
17.	Salah Mehane	Ph.D. degree, 2003
18.	Alexey Cherniavskiy	M.Sc. degree, 2003
19.	Ekaterina Tolstaya	M.Sc. degree, 2004
20.	Ertan Peksen	Ph.D. degree, 2004
21.	Ken Yoshioka	Ph.D. degree, 2004
22.	Alexander Gribenko	Ph.D. degree, 2005
23.	Michael Jessop	M.Sc. degree, 2005
24.	Takumi Ueda	Ph.D. degree, 2006
25.	Abraham Emond	M.Sc. degree, 2006
26.	Leif Cox	Ph.D. degree, 2007
27.	Pichet Puahengsup	M.Sc. degree, 2007
28.	Toshiko Furukawa	M.Sc. degree, 2008
29.	Arun Kumar	M.Sc. degree, 2008
30.	Jonathan Goold	M.Sc. degree, 2008
31.	Samuel Buist	M.Sc. degree, 2009
32.	Charles Phillips	M.Sc. degree, 2010
33.	Alexandra Kaputerko	M.Sc. degree, 2010
34.	Virginie Maris	Ph.D. degree 2010
35.	Hongzhu Cai	M.Sc. degree 2011
36.	Le Fu	M.Sc. degree 2011
37.	Daeung Yoon	M.Sc. degree 2011
38.	Yue Zhu	M.Sc. degree 2011
39.	David Bierman	M.Sc. degree 2012
40.	Muran Han	M.Sc. degree 2012
41.	Zhengwei Xu	Ph.D. degree 2013
42.	Haiyan Fu	M. Sc. degree 2013
43.	Alisa Marie Green	Ph.D. degree 2013
44.	Shihang Feng	M. Sc. degree 2014
45.	Wei Lin	M. Sc. degree 2014
46.	Michael Jorgensen	M. Sc. degree 2015
47.	Hongzhu Cai	Ph.D. degree 2015
48.	Daeung Yoon	Ph.D. degree 2016
49.	Baris Dadak	M. Sc. degree 2016
50.	Yue Zhu	Ph.D. degree 2017
51.	Hassan Al Janobi	M. Sc. degree 2017
52.	Wei Lin	Ph. D. degree 2018
53.	Michael Jorgensen	Ph. D. degree 2019
54.	Muran Han	Ph. D. degree 2019
55.	Xiaolei Tu	Ph. D. degree 2020
56.	Ben Grober	M. Sc. Degree 2020
57.	Cigong Yu	Ph. D. Degree (visiting student 2020-2021)
58.	Yu Tian	Ph. D. Degree (visiting student 2020-2021)
59.	Shuang Zhang	Ph. D. Degree (visiting student 2020-2021)
60.	Xiaodong Luan	Ph. D. Degree (visiting student 2020-2021)

(Total of 33 M.Sc. and 27 Ph.D. degrees)

B. Supervisor of two current graduate students and four visiting graduate students:

Mo Tao (Ph.D.), Tolunay Ersen (M S), Shuang Zhang (Ph.D), Cigong Yu (Ph.D.), Yu Tian (Ph.D.), and Xiaodong Luan (Ph.D.)

Supervisor of Post Docs, Research Associates, Research Scientists, and Visiting Scholars:

A. Post Docs:

Peter Traynin (1993-1997), Dmitriy Pavlov (1997-2002); Oleg Portniaguine (1999-2000), Glenn Wilson (2003-2004); Seong Kon Lee (2003-2005), Alexander Gribenko (2004-2007), and Xiaojun Liu (2008-2009)

B. Research Associates and Scientists:

Nikolay Golubev, (1997-2005) Arvidas Cheryauka (1999-2001), Ken Yoshioka (2004- 2007), Masashi Endo (2006-2009), Shuming Wang (2007-2010).

Vladimir Burtman (2007-present), Alexander Gribenko (2007-2021), Le Wan (2000-present), Noel Black (2008-2014), Martin Cuma (2007-2021), Xiaojun Liu (2009-2013), Michael Jorgensen (2020 – present).

C. Visiting Scholars:

Dr. Zhenyu Li, Dr. Xiaojun Liu, Prof. Huaiqing Zhang, Dr. Bin Xiong, Dr. Huaiqing Zhang, Prof. Changwei Li, Prof. Huolin Ma, Prof. Weiqin Li, Prof. Baoyi Zhang, Dr. Wuyang Li, Dr. Weiqing Li, Dr. Baoyi Zhang, and Dr. Jifeng Zhang.

Publications

A. Monographs

1. Zhdanov, M.S., and Shraibman, V.I., 1973, Correlation methods of the separation of geophysical anomalies: Nedra, Moscow, 128 pp. (in Russian).
2. Shraibman, V.I., Zhdanov, M.S., and Vitvitsky, O.V., 1977, Correlation methods of the transformation and interpretation of geophysical anomalies: Nedra, Moscow, 236 pp. (in Russian).
3. Berdichevsky, M.N., and Zhdanov, M.S., 1981, Interpretation of the anomalies of the transient electromagnetic field of the Earth: Nedra, Moscow, 327 pp. (in Russian).
4. Znamensky, V.V., Zhdanov, M.S., and Petrov, L.P., 1981, Geophysical methods in prospecting and well-logging (First Edition): Nedra, Moscow, 320 pp. (in Russian).
5. Zhdanov, M.S., 1984, Cauchy integral analogs in the geophysical field theory: Nauka, Moscow, 336 pp. (in Russian).

6. Berdichevsky, M.N., and Zhdanov, M.S., 1984, Advanced theory of deep geomagnetic sounding: Elsevier, Amsterdam, 408 pp. (in English).
7. Zhdanov, M.S., 1986, Electrical prospecting: Nedra, Moscow, 316 pp. (in Russian).
8. Zhdanov, M.S., 1988, Integral transforms in geophysics: Springer - Verlag, Heidelberg, 367 pp. (in English).
9. Zhdanov, M.S., Matusevich Y.Yu., and Frenkel, M.A., 1988, Seismic and electromagnetic migration: Nauka, Moscow, 376 pp. (in Russian).
10. Berdichevsky, M.N., Zhdanova, O.N., and Zhdanov, M.S., 1989, Marine deep geoelectricity: Nauka, Moscow, 90 pp. (in Russian).
11. Zhdanov, M.S., Varentsov, Iv.M., Golubev, N.G., and Krylov, V.A., 1990, Methods of modeling of electromagnetic fields: Nauka, Moscow, 200 pp. (in Russian).
12. Dmitriev, V.I., Zhdanov, M.S., Morozov, V. A., Nikitin, A.A., and Brusnetsov, H.P., 1990, Computation mathematics and techniques in exploration geophysics: Nedra, Moscow, 498 pp. (in Russian).
13. Znamensky, V.V., Zhdanov, M.S., and Petrov, L.P., 1991, Geophysical methods in prospecting and well-logging (Second Edition): Nedra, Moscow, 320 pp. (in Russian).
14. Zhdanov, M.S., and Spichak, V.V., 1992, Mathematical modeling of electromagnetic fields in three-dimensional inhomogeneous media: Nauka, Moscow, 188 pp. (in Russian)
15. Zhdanov, M.S., and Keller, G., 1994, The Geoelectrical methods in geophysical exploration: Elsevier, Amsterdam, 873 pp. (in English).
16. Zhdanov, M.S., 2002, Geophysical inverse theory and regularization problems: Elsevier, Amsterdam - New York - Tokyo, 628 pp. (in English).
17. Zhdanov, M.S., and Wannamaker, P.E., Eds, 2002, Three-dimensional electromagnetics: Elsevier, Amsterdam - New York - Tokyo, 290 pp. (in English).
18. Zhdanov, M.S., 2007, Geophysical inverse theory: Nauchnyi Mir, Moscow, 710 pp. (in Russian).
19. Zhdanov, M.S., 2009, Geophysical electromagnetic theory and methods: Elsevier, Amsterdam - New York - Tokyo, 848 pp. (in English).
20. Zhdanov, M.S., Kasahara, J. and Korneev, V., 2010, Ed., Active geophysical monitoring: Elsevier, Amsterdam - New York - Tokyo, 555 pp. (in English).
21. Zhdanov, M.S., 2012, Geophysical electromagnetic theory and methods: Nauchnyi Mir, Moscow, 679 pp. (in Russian)
22. Zhdanov, M.S., 2015, Inverse Theory and Applications in Geophysics: Elsevier, 704 pp. (in English).
23. Zhanov, M.S., 2015, Geophysical Electromagnetic Theory and Methods: Science Press. (in Chinese).
24. Zhdanov, M.S., 2018, Foundations of Geophysical Electromagnetic Theory and Methods: Elsevier, Amsterdam - New York – Tokyo, 804 pp. (in English).
25. Zhdanov, M.S., 2018, Inverse Theory and Applications in Geophysics: Science Press (in Chinese)

26. Kasahara, J., M.S. Zhdanov, and H. Mikada, 2020, Ed., Active geophysical monitoring, Second Edition: Elsevier, Amsterdam - New York - Tokyo, 555 pp. (in English).
27. Zhdanov, M. S. 2021, Ed., Geophysics for mineral exploration: MDPI, Switzerland, 367 pp. (in English).

B. Refereed journal papers published in 1969-2022

Selected papers from more than 200 papers published in Russian and in English from the period of 1969 to 1993:

1. Zhdanov, M.S., and Shraibman, V.I., 1969, Correlation methods of the separation of geophysical anomalies: *Izv. Akad. Nauk SSSR, Fiz. Zemli*, No. 8, 94 - 101.
2. Zhdanov, M.S., 1970, Relationship of singular points of the gravitational and magnetic potentials to the shape of the surface of contact: *Geology and Geophysics*, No. 6, 119 - 122.
3. Zhdanov, M.S., 1971, Development of the theory of analytical continuation in curvilinear domains (two-dimensional potential fields): *Izv. Akad. Nauk SSSR, Fiz. Zemli*, No. 5, 114 - 121.
4. Zhdanov, M.S., 1973, Analytical continuation of two-dimensional potential fields: *Geology and Geophysics*, No. 8, 93 - 97.
5. Zhdanov, M.S., 1973, Properties of the gravitational potential of a three-dimensional homogeneous body: *Geology and Geophysics*, No. 12, 96-101.
6. Zhdanov, M.S., 1973, On analytic continuation of three-dimensional electromagnetic fields: *Izv. Akad. Nauk SSSR, Fiz. Zemli*, No. 4, 66-78.
7. Zhdanov, M.S., 1973, On analytic continuation of two-dimensional electromagnetic fields: *Izv. Akad. Nauk SSSR, Fiz. Zemli*, No. 6, 61- 69.
8. Zhdanov, M.S., 1973, Separation of transient electromagnetic fields of the Earth: *Izv. Akad. Nauk SSSR, Fiz. Zemli*, No. 6, 43-54
9. Zhdanov, M.S., 1974, On the unified approach to the problem of interpretation of geophysical anomalies based on the methods of field continuation: *Geology and Geophysics*, No.10, 129-137.
10. Zhdanov, M.S., 1974, Theory of interpretation of gravitation anomalies determined by three space coordinates: *Izv. Akad. Nauk SSSR, Fiz. Zemli*, No. 9, 32-46.
11. Zhdanov, M.S., 1975, Gravitational field of a three-dimensional layered medium: *Geology and Geophysics*, No. 6, 112-120.
12. Zhdanov, M.S., 1975, Theory of interpretation of deep electromagnetic anomalies using the analytical continuation methods: *Izv. Akad. Nauk SSSR, Fiz. Zemli*, No. 9, 59-73.
13. Berdichevsky, M.N., Zhdanov, M.S., and Feinberg, E. B., 1976, Electrical conductivity functions in the magnetotelluric and magnetovariation methods, *Ann. Geophys.*, 32, 301-318.
14. Zhdanov, M.S., and Feinberg, E.B., 1976. Spatial-temporal filtration of geomagnetic fields: *Geomagn. Aeron.*, 16, 535-541.

15. Zhdanov, M.S., 1980, Cauchy integral analogs for the separation and continuation of electromagnetic fields within conducting matter: *Geophysical Surveys*, No. 4, 115-136.
16. Zhdanov, M.S., 1980, Consideration of the effect of the World Ocean on the transient geomagnetic field by means of a finite-thickness spherical shell: *Geomagn. Aeron.*, 20, 523-529.
17. Zhdanov, M.S., 1980, Analysis of anomalies of the transient geomagnetic field on the surface of a spherical inhomogeneous Earth: *Geomagn. Aeron.*, 20, 912-918.
18. Zhdanov, M.S., 1980, Use of Cauchy integral analogs in the geopotential field theory: *Ann. Geophys.*, 36, No. 4, 447-458.
19. Zhdanov, M.S., and Varentsov, Iv.M., 1980. Interpretation of local geomagnetic anomalies by the method of tightening surfaces: *Geology and Geophysics*, No. 12, 41-51.
20. Zhdanov, M.S., 1981, Continuation of non stationary electromagnetic fields in geoelectrical problems: *Izv. Akad. Nauk SSSR, Fiz. Zemli*, No. 12, 60-69.
21. Zhdanov, M.S., Golubev N.G., Spichak, V.V., and Varentsov Iv.M., 1982, The construction of effective methods for EM modeling: *Geophys. J. Roy. Astron. Soc.*, 68, 589-607.
22. Zhdanov, M.S., and Frenkel, M.A., 1983, The solution of the inverse problems on the basis of analytical continuation of the transient electromagnetic field in the reverse time: *J. Geomagn. and Geoelec*, 35, 747-765.
23. Zhdanov, M.S., and Frenkel, M.A., 1983, The electromagnetic migration method in the solution of inverse geoelectrical problems: *Dokladi Akad Nauk (DAN) SSSR*, 271, No. 3, 589-594.
24. Aslibekan, S.G., Zhdanov, M.S., and Berdichevsky, M.N., 1984, Analyses of magnetic field in time domain in interpretation of geoelectrical data: *Izv. Akad. Nauk SSSR, Fiz. Zemli*, No. 8, 22-28.
25. Zhdanov, M.S., and Matusевич, V.Yu., 1984, Restoration of the spatial pattern of wave propagation in an elastic medium: *Ann. Geophys*, 2, No. 1, 1-15.
26. Zhdanov, M.S., 1987, Application of space analysis of electromagnetic fields to investigation of the geoelectrical structure of the Earth: *PAGEOPH*, 125, Nos. 2/3, 483-497.
27. Velikhov, Ye.P., Zhdanov, M.S., and Frenkel, M.A., 1987, Interpretation of MHD- sounding data from the Kola Peninsula by the electromagnetic migration method: *PEPI*, 45, 149-160.
28. Zhdanov, M.S., and Cherniak, V.V., 1987, Automated method of the solution of 2-D inverse electromagnetic induction problem: *Dokladi Akad Nauk (DAN) SSSR*, 296, No. 1, 59-63.
29. Zhdanov, M.S., and Podchufarov, V.V., 1988, Migration of scalar components of electromagnetic field in geoelectrical problems: *Dokladi Akad Nauk (DAN) SSSR*, 299, No. 3, 331-335.
30. Zhdanov, M.S., and Spichak, V.V., 1989, Numerical modeling of three- dimensional electromagnetic fields in geoelectrics: *Dokladi Akad Nauk (DAN) SSSR*, 309, No. 1, 57-60.
31. Zhdanov, M.S., and Spichak, V.V., 1989, The calculation of local and regional three-dimensional conductivity models using the balance technique: *Ann. Geophys.*, Spec. issue, 84-93.
32. Zhdanov, M.S., Varentsov, Iv.M., Golubev, N.G., Spichak, V.V., and Cherniak, V.V., 1989, Numerical modeling of electromagnetic fields: Geoelectrical study with the powerful source at the Baltic shield, *Nauka, Moscow*, 216-227.

33. Zhdanov, M.S., Spichak, V.V., and Zaslavsky, L., 1990, Numerical modeling of electromagnetic fields over local anomalies with vertical axis of symmetry. PEPI, 60, No. 1, 53-61.
34. Zhdanov, M.S., Abramova, L.M., and Varentsov, Iv.M., 1990, Deep electromagnetic sounding in Bulgaria: Dokladi Akad Nauk (DAN) SSSR, 312, No. 6, 1338-1343.
35. Varentsov, Iv.M., Zhdanov, M.S., and Sokolova, E.Yu., 1991, Study of the robust methods of MT data processing: Proceedings of the 4th Congress on Geomagnetism, Suzdal, 468-469.
36. Zhdanov, M.S., Abramova, L.M., Varentsov, Iv.M., Sanin, S.I., and Shneyer, V.S., 1992, Deep electromagnetic sounding: Lithosphere of the Central and Eastern Europe, Naukova Dumka, 119 - 123.

Selected papers published in 1994-2022 (from more than 300 papers)

1. Zhdanov, M. S., and Tjan, T., 1994, Migration by analytic continuation through a variable background medium: Journal of Seismic Exploration, 3, 283-297.
2. Zhdanov, M.S., Traynin, P., Portniaguine, O., and Mac Lean, H.D., 1995, Time domain electromagnetic migration in INEL RWMC Cold Test Pit characterization: Proceedings of SAGEEP'95, Environmental and Engineering Geophysical Society, 919-924.
3. Zhdanov, M.S., Traynin, P., and Portniaguine O., 1995, Resistivity imaging by time domain electromagnetic migration (TDEMM): Exploration Geophysics, 25, 186-194.
4. Zhdanov, M.S., Traynin P., and Booker, J.R., 1996, Underground imaging by frequency domain electromagnetic migration: Geophysics, 61, No 3, 666-682.
5. Zhdanov, M.S., and Fang, Sh., 1996, Quasi-linear approximation in 3D electromagnetic modeling: Geophysics, 61, No 3, 646-665.
6. Zhdanov, M.S., and Fang, Sh., 1996, 3D quasi-linear electromagnetic inversion: Radio Science, 31, No. 4, 741-754.
7. Traynin, P., Zhdanov, M.S., Nyquist, J., Beard, L., and Doll, W., 1996, A new approach to interpretation of airborne magnetic and electromagnetic data: Proceedings of SAGEEP'96, Environmental and Engineering Geophysical Society.
8. Zhdanov, M.S., and Portniaguine, O., 1997, Time domain electromagnetic migration in the solution of the inverse problems: Geophysical Journal International , 131, 293-309.
9. Zhdanov, M.S., and Traynin, P., 1997, Migration versus inversion in electromagnetic imaging technique: Journal of Geomagnetism and Geoelectricity, 49, No.s 11-12, 1415-1437.
10. De Lugao, P., Portniaguine, O., and Zhdanov, M.S., 1997, Fast and stable two-dimensional inversion of magnetotelluric data: Journal of Geomagnetism and Geoelectricity, 49, No.s 11-12, 1437-1454.
11. Zhdanov, M.S., and Fang, Sh., 1997, Quasi-linear series in 3-D electromagnetic modeling: Radio Science, 32, No. 6, 2167-2188.
12. Johnson, A., Borup, D., Wiskin, J., Berggren, M., Zhdanov, M.S., Bunch, K., and Eidens, R., 1997, Application of inverse scattering and other refraction corrected methods to environmental imaging with acoustic or electromagnetic energy: Next generation environmental models and computational methods, SIAM, Philadelphia, 295-312.

13. Zhdanov, M.S., Varentsov, Iv.M., Weaver, J.T., Golubev N.G., and Krylov V.A., 1997, Special issue, Methods for modeling electromagnetic fields: *Journal of Applied Geophysics*, 37, No.s 3-4, 131-273.
14. Zhdanov, M.S., 1998, Advanced modeling and inversion technologies for high-resolution electromagnetic methods: *Proceedings of the 4th SEGJ International Symposium*, Tokyo, 15-20.
15. Portniaguine, O., and Zhdanov, M.S., 1998, Focusing inversion of geophysical data: *Proceedings of the 3rd International Symposium on Recent Advances in Exploration Geophysics*, Kyoto, 23-32.
16. Portniaguine, O., and Zhdanov, M.S., 1999, Parameter estimation for 3D geoelectromagnetic inverse problems: in *Three-dimensional Electromagnetics*, ed. by M. Oristaglio and B. Spies, 1999, *Geophys. Devel. Ser.*, No. 7, Society of Exploration Geophysicists, Tulsa.
17. Zhdanov, M.S., and Fang, Sh., 1999, 3D quasi-linear electromagnetic modeling and inversion: in *Three-dimensional Electromagnetics*, ed. by M. Oristaglio and B. Spies, *Geophys. Devel. Ser.*, No. 7, SEG, Tulsa.
18. Portniaguine O., and Zhdanov, M.S., 1999, Focusing geophysical inversion images: *Geophysics*, 64, No. 3, 874-887.
19. Zhdanov, O. N., and Zhdanov, M.S., 1999, Methods for the analysis and interpretation of the sea floor electromagnetic fields: *Deep Electromagnetic Exploration*, Springer-Verlag, Narosa Publishing House, 248-259.
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110. Zhdanov, M. S., & Ueda, T., 2007, Joint iterative migration of electric and magnetic-field data: 77th Annual International Meeting, San Antonio, Texas.
111. Kaputerko, A., Gribenko, A., & Zhdanov, M. S., 2007, Sensitivity analysis of marine CSEM surveys: 77th Annual International Meeting, San Antonio, Texas.
112. Endo, M., Čuma, M., & Zhdanov, M.S., 2008, Large-scale electromagnetic modeling for multiple inhomogeneous domains: 78th Annual International Meeting, SEG, Las Vegas, Nevada.
113. Wan, L. & Zhdanov, M.S., 2008, Focusing inversion of marine full-tensor gradiometry data in offshore geophysical exploration: 78th Annual International Meeting, SEG, Las Vegas, Nevada.
114. Zhdanov, M.S., Čuma, M., & Ueda, T., 2008, Three-dimensional electromagnetic holographic imaging in offshore petroleum exploration: 78th Annual International Meeting, SEG, Las Vegas, Nevada.
115. Zhdanov, M.S., Gribenko, A., Burtman, V., & Dmitriev, V.I., 2008, Anisotropy of induced polarization in the context of the generalized effective-medium theory: 78th Annual International Meeting, SEG, Las Vegas, Nevada.
116. Zhdanov, M.S. & Wan, L., 2008, 3D inversion of gravity gradiometry data using focusing regularization: 78th Annual International Meeting, SEG, Las Vegas, Nevada.
117. Endo, M., Čuma, M., & Zhdanov, M.S., 2009, Multiple domain integral equation method for 3D electromagnetic modeling in complex geoelectrical structures: 79th Annual International Meeting, SEG, Houston, Texas.
118. Zhdanov, M., & Čuma, M., 2009, Electromagnetic migration of marine CSEM data in areas with rough bathymetry: 79th Annual International Meeting, SEG, Houston, Texas.
119. Zhdanov, M.S., Wan, L., Gribenko, A., Čuma, M., Key, K., & Constable, S., 2009, Rigorous 3D inversion of marine magnetotelluric data in the area with complex bathymetry: 79th Annual International Meeting, SEG, Houston, Texas.
120. Zhdanov, M., & Burtman, V., 2009, Induced polarization in hydrocarbon-saturated sands and sandstones: Experimental study and general effective medium modeling: 79th Annual International Meeting, SEG, Houston, Texas.

121. Zhdanov, M., & Wang, Shuming, 2009, Foundations of the method of EM field separation into upgoing and downgoing parts and its application to MCSEM data: 79th Annual International Meeting, SEG, Houston, Texas.
122. Black, N., & Zhdanov, M., 2009, Monitoring of hydrocarbon reservoirs using marine CSEM method: 79th Annual International Meeting, SEG, Houston, Texas.
123. Gribenko, A., & Zhdanov, M., 2009, Rigorous 3D inversion of tensor electrical and magnetic induction well logging data in inhomogeneous media: 79th Annual International Meeting, SEG, Houston, Texas.
124. Cuma, M., Wilson, G.A., Zhdanov, M.S., Velikhov, E.P., Black, N., and Gribenko, A., 2010, Multiple inversion scenarios for enhanced interpretation of marine CSEM data using iterative migration: 80th Annual International Meeting, SEG, Denver, Colorado.
125. Hobbs, B., Zhdanov, M.S., Gribenko, A., Paterson, A., Wilson, G.A., and Clarke, C., 2010, 3D focusing regularized inversion of marine transient electromagnetic data: A case study from the Albehim field, North Sea: 80th Annual International Meeting, SEG, Denver, Colorado.
126. Zhdanov, M.S., Liu, X., and Wilson, G.A., 2010, Rapid imaging of gravity gradiometry data using 2D potential field migration: 80th Annual International Meeting, SEG, Denver, Colorado.
127. Cox, L.H., Wilson, G.A., and Zhdanov, M.S., 2010, 3D inversion of frequency-domain AEM surveys with a moving footprint: 80th Annual International Meeting, SEG, Denver, Colorado.
128. Gribenko, A., Green, A.M., Cuma, M., and Zhdanov, M.S., 2010, Efficient 3D inversion of MT data using the integral equation method and receiver footprint approach: Application to the large-scale inversion of EarthScope MT data: 80th Annual International Meeting, SEG, Denver, Colorado.
129. Burtman, V., Gribenko, A., and Zhdanov, M.S., 2010, Advances in experimental research of induced polarization effect in reservoir rocks: 80th Annual International Meeting, SEG, Denver, Colorado.
130. Zhdanov, M.S., Cox, L.H., and Wilson, G.A., 2010, Advances in electromagnetic modeling based on integral equation methods and their application to 3D inversion of time-domain airborne data: 80th Annual International Meeting, SEG, Denver, Colorado.
131. Black, N., Wilson, G.A., Gribenko, A., and Zhdanov, M.S., 2010, 3D inversion of time-lapse CSEM data for reservoir surveillance: 80th Annual International Meeting, SEG, Denver, Colorado.
132. Wang, S., and Zhdanov, M.S., 2010, Removal of the airwave effect on MCSEM data by separation of the main part of the anomalous field: 80th Annual International Meeting, SEG, Denver, Colorado.
133. Endo, M., Liu, X., and Zhdanov, M.S., 2010, Hybrid method for 3D modeling of electromagnetic fields in complex structures with inhomogeneous background conductivity: 80th Annual International Meeting, SEG, Denver, Colorado.
134. Zhdanov, M.S., Cai, H., and Wilson, G.A., 2011, 3D inversion of full tensor magnetic gradiometry (FTMG) data: 81st Annual International Meeting, SEG, San Antonio, Texas, doi: 10.190/1.3628195.
135. Liu, X. and Zhdanov, M.S., 2011, 3D imaging of gravity gradiometry data from a single borehole using potential field migration: 81st Annual International Meeting, SEG, San Antonio, Texas.

136. Zhdanov, M.S., Smith, R.B., Gribenko, A.V., Cuma, M., and Green, A.M., 2011, Large-scale 3D inversion of EarthScope MT data from the area surrounding Yellowstone National Park: 81st Annual International Meeting, SEG, San Antonio, Texas, doi: 10.1190/1.3628140.
137. Gribenko, A.V. and Zhdanov, M.S., 2011, Joint 3D inversion of marine CSEM and MT data: 81st Annual International Meeting, SEG, San Antonio, Texas, doi: 10.1190/1.3628142.
138. Zhdanov, M.S., Liu, X., Wan, L., Cuma, M., and Wilson, G.A., 2011, 3D potential field migration for rapid imaging of gravity gradiometry data – A case study from Broken Hill, Australia, with comparison to 3D regularized inversion: 81st Annual International Meeting, SEG, San Antonio, Texas, doi: 0.1190/3628202.
139. Zhdanov, M.S., Hobbs, B.A., Endo, M., Cox, L.H., Black, N., Gribenko, A.V., Cuma, M., Wilson, G.A., and Morris, E., 2011, 3D inversion of towed streamer EM data – A model study of the Harding field and comparison to 3D CSEM inversion: 81st Annual International Meeting, SEG, San Antonio, Texas, doi: 10.1190/1.3628150.
140. Yoon, D. and Zhdanov, M.S., 2011, Controlled sensitivities for marine CSEM surveys: 81st Annual International Meeting, SEG, San Antonio, Texas, doi: 10.1190/1.3628152
141. Wilson, G.A., Fraser, S., Cox, L.H., Cuma, M., Zhdanov, M.S., and Vallee, M.A., 2011, Lithological classification of large-scale 3D inversion of airborne electromagnetic, gravity gradiometry, and magnetic data – A case study from Reid-Mahaffy, Ontario: 81st Annual International Meeting, SEG, San Antonio, Texas, doi: 10.1190/1.3628157.
142. Black, N., Wilson, G.A., Gribenko, A.V., and Zhdanov, M.S., 2011, 3D inversion of time-lapse CSEM data based on dynamic reservoir simulation of the Harding field, North Sea: 81st Annual International Meeting, SEG, San Antonio, Texas, doi: 10.1190/1.3628166
143. Burtman, V., Endo, M., Zhdanov, M.S., and Ingeman-Nielsen, T., 2011, High-frequency induced polarization measurements of hydrocarbon-bearing rocks: 81st Annual International Meeting, SEG, San Antonio, Texas, doi: 10.1190/1.3628168.
144. Zhdanov, M.S., and Cai, H., 2012, Redatuming borehole-to-surface electromagnetic data using Stratton-Chu integral transforms: 82nd Annual International Meeting, SEG, Las Vegas, Nevada.
145. Gribenko, A.V., Zhdanov, M.S., Legault, J., Zhao S., Cox, L.H., Wilson, G.A., and Fisk, K., 2012, 3D inversion of AirMt AFMAG data: 82nd Annual International Meeting, SEG, Las Vegas, Nevada.
146. Zhdanov, M.S., Wilson, G.A., and Liu, X., 2012, A new Method of terrain correcting airborne gravity gradiometry data using 3D Cauchy-type integrals: 82nd Annual International Meeting, SEG, Las Vegas, Nevada.
147. Cox, L.H., Wilson, G.A., Zhdanov, M.S., and Vrbancich, J., 2012, 3D lithological inversion of geophysical data: 82nd Annual International Meeting, SEG, Las Vegas, Nevada.
148. Zhdanov, M.S., Cuma, M., Wilson, G.A., and Polome, L., 2012, 3D magnetization vector inversion for SQUID-based full tensor magnetic gradiometry: 82nd Annual International Meeting, SEG, Las Vegas, Nevada.
149. Zhdanov, M.S., Cuma, M., Endo, M., Cox, L.H., Wilson, G.A., and Linfoot, J., 2012, The first practical 3D inversion of towed streamer EM data from the Troll field trial: 82nd Annual International Meeting, SEG, Las Vegas, Nevada.
150. Zhdanov, M.S., Burtman, V., Endo, M., and Wilson, G.A., 2012, Laboratory-based GEMTIP analysis of spectral IP data for mineral discrimination: 82nd Annual International Meeting, SEG, Las Vegas, Nevada.

151. Cai, H., and Zhdanov, M.S., 2013, Redatuming of borehole-to-surface electromagnetic data at the Kevin Dome exploration site: : 83rd Annual International Meeting, SEG, Houston, Texas.
152. Cuma, M., Zhdanov, M.S., and Gribenko, A.V., 2013, Large-scale 3D integral equation based inversion of EarthScope MT data using a variable sensitivity domain: 83rd Annual International Meeting, SEG, Houston, Texas.
153. Gribenko, A.V., and Zhdanov, M.Z., 2013, New approach to 3D inversion of MCSEM and MMT data using multinary model transform: 83rd Annual International Meeting, SEG, Houston, Texas.
154. Sunwall, D., Cox, L., and Zhdanov, M., 2013, Joint 3D inversion of time- and frequency-domain airborne electromagnetic data: 83rd Annual International Meeting, SEG, Houston, Texas.
155. Zhdanov, M. and Cai, H., 2013, Inversion of gravity and gravity gradiometry data for density contrast surfaces using Cauchy-type integrals: 83rd Annual International Meeting, SEG, Houston, Texas.
156. Zhu, Y., Zhdanov, M.S., and Cuma, M., 2013, Gramian constraints in the joint inversion of airborne gravity gradiometry and magnetic data: 83rd Annual International Meeting, SEG, Houston, Texas.
157. Yoon, D., and Zhdanov, M.S., 2013, Feasibility study of the marine electromagnetic remote sensing (MEMRS) method for near-shore exploration: 83rd Annual International Meeting, SEG, Houston, Texas.
158. Wan, L., and Zhdanov, M.S., 2013, Iterative migration of gravity and gravity gradiometry data: 83rd Annual International Meeting, SEG, Houston, Texas.
159. Zhdanov, M.S., Endo, M., Black, N., Spangler, L., Fairweather, S., Hibbs, A., Eisenkamp, G.A., and Will, R., 2013, Feasibility study of electromagnetic monitoring of CO₂ sequestration in deep reservoirs: 83rd Annual International Meeting, SEG, Houston, Texas.
160. Burtman, V., Fu, H., and Zhdanov, M.S., 2014, Spectral induced polarization effect in unconventional reservoir rocks: 84th Annual International Meeting, SEG, Denver, Colorado.
161. Marsala, A., Zhdanov, M.S., Endo, M., and Black, N., 2014, 3D inversion of borehole to surface electromagnetic data in a multiple reservoirs survey: 84th Annual International Meeting, SEG, Denver, Colorado.
162. Cai, H., and Zhdanov, M.S., 2014, Inversion of gravity data in the Big Bear Lake Area to recover depth to basement using Cauchy-type integrals: 84th Annual International Meeting, SEG, Denver, Colorado.
163. Gribenko, A., and Zhdanov, M.S., 2014, Anisotropic inversion of MCSEM data based on the integral equation method: 84th Annual International Meeting, SEG, Denver, Colorado.
164. Yoon, D., and Zhdanov, M.S., 2014, An optimal synthetic aperture method for the creation of directional sensitivity and removal of the airwave effect in MCSEM data: 84th Annual International Meeting, SEG, Denver, Colorado.
165. Zhu, Y., Cuma, M., Kinakin, Y., and Zhdanov, M.S., 2014, Joint inversion of airborne gravity gradiometry and magnetic data from the Lac de Gras region of the Northwest Territories of Canada: 84th Annual International Meeting, SEG, Denver, Colorado.
166. Cox, L.H., and Zhdanov, M.S., 2014, 3D airborne electromagnetic inversion using a hybrid edge-based FE-IE method with moving sensitivity domain: 84th Annual International Meeting, SEG, Denver, Colorado.

167. Burtman, V., Endo, M., Marsala, A., and Zhdanov, M.S., 2015, Feasibility study of application of nanoparticles in complex resistivity (CR) reservoir monitoring: 85th Annual International Meeting, SEG, New Orleans, Louisiana.
168. Gribenko, A., and Zhdanov, M.S., 2015, 3D inversion of regional MT data distorted by near-surface inhomogeneities using a complex distortion matrix: 85th Annual International Meeting, SEG, New Orleans, Louisiana.
169. Jorgenson, M.R., Cuma, M., and Zhdanov, M.S., 2015, 3D joint inversion of magnetotelluric and magnetovariational data to image conductive anomalies in Southern Alberta, Canada: 85th Annual International Meeting, SEG, New Orleans, Louisiana.
170. Zhdanov, M.S., Endo, M., Sunwall, D., 2015, Advanced 3D imaging of complex geoelectrical structures using towed streamer EM data: 85th Annual International Meeting, SEG, New Orleans, Louisiana.
171. Yoon, D., Zhdanov, M.S., Cai, H., and Gribenko, A., 2015, A hybrid finite difference and integral equation method for modeling and inversion of marine CSEM data: 85th Annual International Meeting, SEG, New Orleans, Louisiana.
172. Cai, H., Cuma, M., and Zhdanov, M.S., 2015, Three-dimensional parallel edge-based finite element modeling of electromagnetic data with field redatuming: 85th Annual International Meeting, SEG, New Orleans, Louisiana.
173. Lin, W., Zhdanov, M.S., Burtman, V., and Gribenko, A., 2015, GEMTIP inversion of complex resistivity data using a hybrid method based on a genetic algorithm with simulated annealing and regularized conjugate gradient method: 85th Annual International Meeting, SEG, New Orleans, Louisiana.
174. Zhu, Y., and Zhdanov, M.S., 2015, Joint inversion of airborne magnetic and electromagnetic data: Case study in the Northwest Territories of Canada: 85th Annual International Meeting, SEG, New Orleans, Louisiana.
175. Cai, H., and Zhdanov, M.S., 2015, Magnetotelluric inversion for depth-to-basement estimation: 85th Annual International Meeting, SEG, New Orleans, Louisiana.
176. Zhu, Y., Zhdanov, M.S., and Cuma, M., 2015, Inversion of TMI data for the magnetization vector using Gramian constraints: 85th Annual International Meeting, SEG, New Orleans, Louisiana.
177. Zhdanov, M.S., Yoon, D., and Mattsson, 2016, Rapid imaging of towed streamer EM data for reconnaissance offshore exploration using the optimal synthetic aperture method: 86th Annual International Meeting, SEG, Dallas, Texas.
178. Wan, L., Han, M., and Zhdanov, M.S., 2016, Joint iterative migration of surface and borehole gravity gradiometry data: 86th Annual International Meeting, SEG, Dallas, Texas.
179. Cuma, M., Cox, L., and Zhdanov, M.S., 2016, Large-scale parallel 3D inversion of frequency and time domain AEM data: 86th Annual International Meeting, SEG, Dallas, Texas.
180. Zhdanov, M.S., Endo, M., Sunwall, D., Cuma, M., Malmberg, J-A, McKay, A., Tshering, T., and Midgley, J., 2016, 3D inversion of the towed streamer EM data using the seismic constraints: 86th Annual International Meeting, SEG, Dallas, Texas.
181. Zhdanov, M.S., Endo, M., Burtman, V., and Cuma, M., 2016, Effective-medium inversion of induced polarization data for mineral exploration and mineral discrimination: Case study for the copper deposit in Mongolia: 86th Annual International Meeting, SEG, Dallas, Texas.

182. Burtman, V., Endo, M., Lin, W., and Zhdanov, M.S., 2016, Complex resistivity of mineral rocks in the context of the generalized effective-medium theory of the IP effect: 86th Annual International Meeting, SEG, Dallas, Texas.
183. Lin, W., Burtman, V., Endo, M., Zhdanov, M.S., and Takakura, S., 2016, Effective-medium modeling of the induced polarization effect in multiphase artificial mineral rocks: 86th Annual International Meeting, SEG, Dallas, Texas.
184. Lin, W., and Zhdanov, M.S., 2016, 3D inversion of gravity and gravity gradiometry data using multinary transformation of the model parameters: 86th Annual International Meeting, SEG, Dallas, Texas.
185. M Zhdanov, D Yoon, J Mattsson, M Endo, 2017, Application of the optimal synthetic aperture for rapid imaging of towed streamer electromagnetic data acquired in the Barents Sea: SEG International Exposition and Annual Meeting, Houston, Texas.
186. H Cai, MS Zhdanov, 2017, Finite-element time-domain electromagnetic modeling with induced-polarization effects using adaptive Padé series: SEG International Exposition and Annual Meeting, Houston, Texas.
187. W Lin, M Zhdanov, 2017, Joint inversion of seismic and gravity gradiometry data using Gramian constraints: SEG International Exposition and Annual Meeting, Houston, Texas.
188. A Gribenko, M Zhdanov, 2017, Regularized Gauss-Newton method of nonlinear geophysical inversion in the data space: Applications to 3D magnetotelluric inversion: SEG International Exposition and Annual Meeting, Houston, Texas.
189. Endo, M, L Cox, D Sunwall, M Zhdanov, E Asakawa, 2017, 3D inversion of the time-domain electromagnetic data for exploration of submarine hydrothermal deposits using the GEMTIP model: SEG Technical Program Expanded Abstracts 2017, 1184-1188.
190. Malovichko, MS, NB Yavich, MS Zhdanov, 2017, Integrating Electrical Conductivity in 3D Seismic Inversion with Gramian Constraints: 79th EAGE Conference and Exhibition.
191. Malovichko, MS, NI Khokhlov, NB Yavich, MS Zhdanov, 2017, Parallel Integral Equation Method and Algorithm for 3D Seismic Modelling: 79th EAGE Conference and Exhibition.
192. Yavich, N, MS Malovichko, N Khokhlov, MS Zhdanov, 2017, Advanced Method of FD Electromagnetic Modeling Based on Contraction Operator: 79th EAGE Conference and Exhibition.
193. Endo, M, MS Zhdanov, E Asakawa, S Lee, T Sumi, T Yamakawa, 2017, Application of Time Domain Electromagnetic Method for Exploration of Submarine Hydrothermal Deposits Using the GEMTIP Model: 79th EAGE Conference and Exhibition.
194. Zhdanov, M., F Alfouzan, L Cox, A Alotaibi, M Alyousif, D Sunwall, 2018, Large-Scale Multiphysics Airborne Geophysical Survey in Saudi Arabia: Results of the Glass Earth (Pilot) Project: 2nd Conference on Geophysics for Mineral Exploration and Mining
195. Malovichko, M., N Yavich, N Khokhlov, M Zhdanov, 2018, On the Optimal Strategy of Three-Dimensional Inversion of Low-Frequency Electromagnetic Data: 2nd Conference on Geophysics for Mineral Exploration and Mining
196. Yavich, N., M Malovichko, N Khokhlov, M Zhdanov, 2018, Preconditioning the Time-Harmonic Acoustic Wave Equation Based on a Special Contraction Operator Transformation: 2nd Conference on Geophysics for Mineral Exploration and Mining

197. Endo, N., L Cox, D Sunwall, M Zhdanov, E Asakawa, 2018, Geophysical exploration of submarine massive sulfide deposits based on integration of multimodal geophysical data: 2nd Conference on Geophysics for Mineral Exploration and Mining
198. Malovichko, M., N Yavich, N Khokhlov, M Zhdanov, 2018, The Gramian Constraint for Incorporating A Priori Geoelectrical Model into Seismic Full-Waveform Inversion: 2nd Conference on Geophysics for Mineral Exploration and Mining.
199. Endo, M., A Gribenko, D Sunwall, MS Zhdanov, T Miura, H Mochinaga, 2018, Integrated interpretation of multimodal geophysical data for exploration of geothermal resources-Case study: Yamagawa geothermal field in Japan: SEG Technical Program Expanded Abstracts, 2322-2326.
200. Zhdanov, M., M Čuma, 2018, Joint inversion of multimodal data using focusing stabilizers and Gramian constraints: SEG Technical Program Expanded Abstracts, 1430-1434.
201. Tu, X., and M. Zhdanov, 2018, Robust optimal synthetic aperture imaging of towed streamer electromagnetic data: SEG Technical Program Expanded Abstracts, 903-908.
202. Jorgensen, M., and MS Zhdanov, 2018, Joint 3D inversion of gravity and MT data using Gramian constraints: a case study from Yellowstone: SEG Technical Program Expanded Abstracts, 2307-2311
203. Wan, L., M Han, H Ali, AlJanobi, MS Zhdanov, 2018, Feasibility study of gravity gradiometry monitoring of CO₂ sequestration in deep reservoirs using surface and borehole data: SEG Technical Program Expanded Abstracts, 1450-1454.
204. Endo, M., M Zhdanov, A Gribenko, D Sunwall, T Miura, H Mochinaga, 2018, Three-Dimensional Inversion and Interpretation of Multimodal Geophysical Data in Yamagawa Geothermal Field, Japan: 80th EAGE Conference and Exhibition
205. Endo, L Cox, M Zhdanov, E Asakawa, 2018, Integrated Interpretation of Multimodal Geophysical Data for the Exploration of Submarine Hydrothermal Deposits: 80th EAGE Conference and Exhibition.
206. X Tu, MS Zhdanov, 2019, Least square migration of synthetic aperture data for towed streamer electromagnetic survey: SEG Technical Program Expanded Abstracts 2019, 1135-1139.
207. X Tu, MS Zhdanov, 2019, Enhancing and sharpening the migration images of gravity field and its gradients: SEG Technical Program Expanded Abstracts 2019, 1704-1708.
208. LH Cox, MS Zhdanov, F Alfouzan, 2019, Inductive coupling in IP measurements and applications to 3D distributed array field data inversion: SEG Technical Program Expanded Abstracts, 2173-2177.
209. Z Xu, L Wan, M Han, MS Zhdanov, Y Mao, 2019, Joint inversion of gravity gradiometry data by model-weighted clustering in logarithmic space: SEG Technical Program Expanded Abstracts 2019, 1779-1783.
210. MS Zhdanov, F Alfouzan, LH Cox, A Alotaibi, 2019, From airborne to effective-medium spectral IP mineral exploration: A case study in Saudi Arabia: SEG Technical Program Expanded Abstracts, 2178-2182.
211. L Cox, M Zhdanov, 2019, Inductive Coupling and Spectral IP Parameter Resolution with Modern Survey Designs: 81st EAGE Conference and Exhibition.
212. N Yavich, M Malovichko, M Zhdanov, 2019, Towards Efficient Finite-Element EM Modeling on Hexahedral Grids: 81st EAGE Conference and Exhibition.

- 213.M Malovichko, AV Tarasov, N Yavich, MS Zhdanov, 2019, Comparing the Effectiveness of CSEM, CSAMT, and DC Methods on a 3D Model of Gold Deposit: 81st EAGE Conference and Exhibition.
- 214.P Stognii, N Khokhlov, M Zhdanov, 2019, Novel Approach to Modelling the Elastic Waves in a Cluster of Subvertical Fractures: 81st EAGE Conference and Exhibition.
- 215.M. Jorgensen, L. Cox and M. S. Zhdanov, 2020, Joint inversion of airborne electromagnetic and total magnetic intensity data using Gramian structural constraints: Case study of the Reid-Mahaffy test site in Ontario, Canada: SEG Technical Program Expanded Abstracts, 611-615.
- 216.X. Tu and M. S. Zhdanov, 2020, Study of the Yellowstone crustal magmatic system with multiphysics data: SEG Technical Program Expanded Abstracts, 1760-1764.
217. X. Tu and M. S. Zhdanov, 2020, Joint Gramian inversion of geophysical data with different resolution capabilities: SEG Technical Program Expanded Abstracts, 1750-1754.
- 218.M. Jorgensen, and M. S. Zhdanov, 2020, 3D joint inversion of potential field data in the presence of remanent magnetization: SEG Technical Program Expanded Abstracts, 964-968.
- 219.M. S. Zhdanov, L. Cox, A. Gribenko, H. Ban and H. Chiba, 2020, Feasibility study of reservoir monitoring in an onshore oil field using SQUITEM system: SEG Technical Program Expanded Abstracts, 601-605.
- 220.M. Jorgensen, L. Cox and M. S. Zhdanov, 2020, Joint Inversion of Airborne Electromagnetic and Total Magnetic Intensity Data Using Gramian Structural Constraints: 82nd EAGE Annual Conference & Exhibition.
- 221.F. Alfouzan, A. Alotaibi, L. Cox, M.S. Zhdanov, 2020, Three-Dimensional Inversion of Distributed Array Spectral IP Data and Comparison with AEM-Derived Conductivity Model, Saudi Arabia: 82nd EAGE Annual Conference & Exhibition.
- 222.N. Khokhlov, P. Stognii, and M. S. Zhdanov, 2020, Novel Approach to Modelling the Elastic Waves in a Cluster of 3D Fractured Structures: NSG2020 26th European Meeting of Environmental and Engineering Geophysics.
- 223.E. Avdotin, N. Yavich, N. Khoohlov, M. S. Zhdanov, 2020, Increasing the effectiveness of 3D modeling visco-acoustic wave propagation with a solver based on contraction operators: NSG2020 26th European Meeting of Environmental and Engineering Geophysics.
- 224.M. Jorgensen, and M. S. Zhdanov, 2020, Application of Gramian and Focusing Structural Constraints to Joint Inversion of Gravity and Magnetic Data: NSG2020 26th European Meeting of Environmental and Engineering Geophysics.
- 225.Zhdanov, M. S., M Jorgensen, L Wan, 2021, Two-step approach to 3D gravity inversion: Case study in the State of Utah: First International Meeting for Applied Geoscience & Energy, 916-920
- 226.Tu, S., and M.S. Zhdanov, 2021, Joint focusing inversion of marine controlled-source electromagnetic and full tensor gravity gradiometry data: Case study of the Nordkapp Basin in Barents Sea, Norway: First International Meeting for Applied Geoscience & Energy, 1746-1750
- 227.Tao, M., M Jorgensen, and M.S. Zhdanov, 2021, Mapping the salt structures from magnetic and gravity gradiometry data in Nordkapp Basin, Barents Sea: First International Meeting for Applied Geoscience & Energy, 874-878

Participation in Meetings (1993-2021)

The 63 Annual Meeting of the Society of Exploration Geophysicists, September 1993, Washington, DC.

Fall meeting of the American Geophysical Union, December 1993, San Francisco, California.

VETEM (Very Early Time Electromagnetics) Workshop, January 1994, Golden, Colorado.

VETEM (Very Early Time Electromagnetics) Workshop, July 1994, Golden, Colorado.

12-th International Electromagnetic Induction Workshop, August 1994, Brest, France.

The 64 Annual Meeting of the Society of Exploration Geophysicists, October 1994, Los Angeles, California.

Fall Meeting of the American Geophysical Union, December 1994, San Francisco, California.

VETEM (Very Early Time Electromagnetics) Workshop, January 1995, Golden, Colorado.

XXI General Assembly of the International Union of Geodesy and Geophysics, July 1995, Boulder, Colorado.

VETEM (Very Early Time Electromagnetics) Workshop, July 1995, Berkeley, California.

Progress in Electromagnetic Research Symposium (PIERS), July 1995, Seattle, Washington.

11-th Geophysical Conference of the Australian Society of Exploration Geophysicists, September 1995, Adelaide, Australia.

International Symposium on Three-Dimensional Electromagnetics, October 1995, Schlumberger-Doll Research, Ridgefield, Connecticut.

The 65 Annual Meeting of the Society of Exploration Geophysicists, October 1995, Houston, Texas.

Fall Meeting of the American Geophysical Union, December 1995, San Francisco, California.

13-th International Electromagnetic Induction Workshop, July 1996, Onuma, Japan.

VETEM (Very Early Time Electromagnetics) Workshop, July 1996, Berkeley, California.

The 66 Annual Meeting of the Society of Exploration Geophysicists, October 1996, Denver, Colorado.

Fall Meeting of the American Geophysical Union, December 1996, San Francisco, California.

NOIGEM (Non-linear global optimization and inversion of geophysical EM data), Meeting of the Academy of Finland, March, 1997, Oulu, Finland.

The 67 Annual Meeting of the Society of Exploration Geophysicists, October 1997, Dallas, Texas.

The 8-th Scientific Assembly of International Association of Geomagnetism and Aeronomy, 1997, Uppsala, Sweden.

Fall Meeting of the American Geophysical Union, December 1997, San Francisco, California.

The 68 Annual Meeting of the Society of Exploration Geophysicists, September 1998, New Orleans, Louisiana.

The 3rd International Symposium on Recent Advances in Exploration Geophysics, December 1998, Kyoto, Japan.

The 4th International Symposium, of the Society of Exploration Geophysicists, Japan, December 1998, Tokyo, Japan.

XXII General Assembly of the International Union of Geodesy and Geophysics, August 1999, Birmingham, England, UK.

The 69 Annual Meeting of the Society of Exploration Geophysicists, November 1999, Houston, Texas.

The Second International Symposium on 3-D Electromagnetics, October, 1999, University of Utah, Salt Lake City, Utah.

Fall Meeting of the American Geophysical Union, December 1999, San Francisco, California.

Progress in Electromagnetic Research Symposium (PIERS), July 2000, Boston, Massachusetts.

The 70 Annual Meeting of the Society of Exploration Geophysicists, August 2000, Calgary, Canada.

Fall Meeting of the American Geophysical Union, December 2000, San Francisco, California.

The 42nd SPWLA Annual Logging Symposium, June 2001, Houston, Texas.

The 71 Annual Meeting of the Society of Exploration Geophysicists, September 2001, San Antonio, Texas.

Fall Meeting of the American Geophysical Union, December 2001, San Francisco, California.

The 9th Scientific Assembly of International Association of Geomagnetism and Aeronomy, 2001, Hanoi, Vietnam.

The 64th EAGE Conference and Exhibition, May 2002, Florence, Italy.

The 72 Annual Meeting of the Society of Exploration Geophysicists, October 2002, Salt Lake City, Utah.

Fall Meeting of the American Geophysical Union, December 2002, San Francisco, California.

International Electromagnetic Induction Workshop of IAGA, June 2002, Santa Fe, New Mexico.

Progress in Electromagnetic Research Symposium (PIERS), July 2002, Boston, Massachusetts.

The Third International Symposium on 3-D Electromagnetics, February 2003, Adelaide, Australia.

The Annual Meeting of the Australian Society of Exploration Geophysicists, February 2003, Adelaide, Australia.

Progress in Electromagnetic Research Symposium (PIERS), October 2003, Hawaii.

The 73 Annual Meeting of the Society of Exploration Geophysicists, November 2003, Dallas, Texas.

Fall Meeting of the American Geophysical Union, December 2003, San Francisco.

Progress in Electromagnetic Research Symposium (PIERS), March 2004, Piza, Italy.

International Workshop on Active Monitoring in the Solid Earth Geophysics, July 2004, Mizunami, Japan.

The 74 Annual Meeting of the Society of Exploration Geophysicists, September 2004, Denver, Colorado.

Fall Meeting of the American Geophysical Union, December 2004, San Francisco, California.

SEG Marine CSEM Forum, April, 2005, Ucross.

Norway-North American Workshop on Petroleum Research Co-operation, November 2005, Washington, D.C.

The 75 Annual Meeting of the Society of Exploration Geophysicists, November 2005, Houston, Texas.

Fall Meeting of the American Geophysical Union, December 2005, San Francisco, California.

The 68th EAGE Conference and Exhibition, June 2006, Vienna, Austria.

The 76 Annual Meeting of the Society of Exploration Geophysicists, October 2006, New Orleans, Louisiana.

Fall Meeting of the American Geophysical Union, December 2006, San Francisco, California.

The 69th EAGE Conference and Exhibition, June 2007, London, England, UK.

The 23rd International Review of Progress in Applied Computational Electromagnetics (ACES 2007) March 2007, Verona, Italy.

EGM 2007 International Workshop (Innovation in EM, Grav and Mag Methods: a new Perspective for Exploration), April 2007, Capri , Italy.

The First International Scientific Nobel Conference "Innovative Electromagnetic Methods of Geophysics," July 2007, Salekhard, Russia.

The 77 Annual Meeting of the Society of Exploration Geophysicists, September 2007, San Antonio, Texas.

Fall Meeting of the American Geophysical Union, December 2007, San Francisco, California.

The 70 th EAGE Conference and Exhibition, June 2008, Rome, Italy.

The 78 Annual Meeting of the Society of Exploration Geophysicists, November 2008, Las Vegas, Nevada.

Fall Meeting of the American Geophysical Union, December 2008, San Francisco, California.

The 71st EAGE Conference and Exhibition, June 2009, Amsterdam, The Netherlands.

The 79th Annual Meeting of the Society of Exploration Geophysicists, November 2009, Houston, Texas.

Fall Meeting of the American Geophysical Union, December 2009, San Francisco, California.

The 80th Annual Meeting of the Society of Exploration Geophysicists, October, Denver, Colorado.

Fall Meeting of the American Geophysical Union, December, 2010, San Francisco, California.

The 81st Annual Meeting of the Society of Exploration Geophysicists, September 2011, San Antonio, Texas.

Fall Meeting of the American Geophysical Union, December, 2011, San Francisco, California.

The 82nd Annual Meeting of the Society of Exploration Geophysicists, November 2012, Las Vegas, Nevada.

The 74th EAGE Conference and Exhibition, June 2012, Copenhagen, Denmark.

The 83rd Annual Meeting of the Society of Exploration Geophysicists, September 2013, Houston, Texas.

The 75st EAGE Conference and Exhibition, June 2013, London, UK.

Fall Meeting of the American Geophysical Union, December, 2013, San Francisco, California.

The 84nd Annual Meeting of the Society of Exploration Geophysicists, 2014, Denver, Colorado.

The 76st EAGE Conference and Exhibition, June 2014, Amsterdam, The Netherlands.

The 85th Annual Meeting of the Society of Exploration Geophysicists, 2015, New Orleans, Louisiana.

The 77st EAGE Conference and Exhibition, June 2015, Madrid, Spain.

The 86th Annual Meeting of the Society of Exploration Geophysicists, 2016, Dallas, Texas.

The 78st EAGE Conference and Exhibition, June 2016, Vienna, Austria.

First European Conference on Mining Geophysics, September, 2016, Barcelona, Spain.

Fall Meeting of the American Geophysical Union, December, 2016, San Francisco, California.

The 79th EAGE Conference and Exhibition, June 2017, Paris, France

The 87th Annual Meeting of the Society of Exploration Geophysicists, 2017, Houston, Texas.

First International Meeting for Applied Geoscience & Energy, 2021, Denver, CO.

Meetings/Sessions Organized (1994-2021)

Invited Session Chairman at the 64 Annual Meeting of the Society of Exploration Geophysicists, Los Angeles , October 1994.

Invited Session Chairman at the Fall Meeting of the American Geophysical Union, San Francisco, December 1994.

Invited Session Chairman at the General Assembly of the International Union of Geodesy and Geophysics, Boulder, Colorado, July 1995.

Invited Session Chairman at the 65 Annual Meeting of the Society of Exploration Geophysicists, Houston, October 1995.

Elected Convener of Working Group 1.2 "Electromagnetic Induction in the Earth" at the 8-th Scientific Assembly of IAGA (International Association of Geomagnetism and Aeronomy), Sweden, August 1997.

Invited Session Chairman at the 13-th International Electromagnetic Induction Workshop, Onuma, Japan, July 1996.

Co-chairman of the Organizing Committee of the Second International Symposium on 3-D Electromagnetics, University of Utah, Salt Lake City, October 1999.

Elected Convener of the session "Electromagnetic Induction Study" at the General Assembly of IUGG (International Union of Geodesy and Geophysics), England, August 1999.

Invited Session Chairman at the 69 Annual Meeting of the Society of Exploration Geophysicists, Houston, November 1999.

Invited Session Chairman at the Progress in Electromagnetic Research Symposium (PIERS), Boston, 2000.

Elected Convener of the session "Three-dimensional modeling and inversion" at the 9-th Scientific Assembly of IAGA (International Association of Geomagnetism and Aeronomy), Vietnam, Hanoi, 2001.

Invited Session Chairman at the Third International Symposium on 3-D Electromagnetics, February 2003, Adelaide, Australia.

Invited Session Organizer for Progress in Electromagnetic Research Symposium (PIERS), October 2003, Hawaii.

Invited Session Organizer for Progress in Electromagnetic Research Symposium (PIERS), March 2004, Piza, Italy.

Session Organizer and Chairman for Fall Meeting of the American Geophysical Union, December 2004, San Francisco.

Invited Session Chairman at the 75 Annual Meeting of the Society of Exploration Geophysicists, November 2005, Houston, Texas.

Session Organizer and Chairman for Fall Meeting of the American Geophysical Union, December 2005, San Francisco.

Session Organizer and Chairman for Fall Meeting of the American Geophysical Union, December 2006, San Francisco.

Invited Session Organizer for Progress in Electromagnetic Research Symposium (PIERS), March 2006, Boston.

Invited Session Organizer and Chairman of the 23rd International Review of Progress in Applied Computational Electromagnetics (ACES 2007) March 2007, Verona, Italy.

Co-Chairman of the First International Scientific Nobel Conference "Innovative Electromagnetic Methods of Geophysics," July 2007, Salekhard, Russia.

Session Organizer and Chairman for Fall Meeting of the American Geophysical Union, December 2007, San Francisco.

Session Organizer and Chairman for Fall Meeting of the American Geophysical Union, December 2008, San Francisco.

Invited Session Chairman at the 79th Annual Meeting of the Society of Exploration Geophysicists, October 2009, Houston.

Session Organizer and Chairman for Fall Meeting of the American Geophysical Union, December 2009, San Francisco.

Session Organizer and Chairman for Fall Meeting of the American Geophysical Union, December 2010, San Francisco.

Session Organizer and Chairman for Fall Meeting of the American Geophysical Union, December 2011, San Francisco.

Session Organizer and Chairman for Fall Meeting of the American Geophysical Union, December 2012, San Francisco.

Technical Session Chairman of the 84th Annual Meeting of the Society of Exploration Geophysicists, 2014, Denver, Colorado.

Technical Session Chairman of the 85th Annual Meeting of the Society of Exploration Geophysicists, 2015, New Orleans, Louisiana.

Chairman of the Organizing Committee of the First European Conference on Mining Geophysics, EAGE, Barcelona, 2016.

Chairman of the Organizing Committee of the Second European Conference on Mining Geophysics, EAGE, Porto, 2018

Chairman of the Organizing Committee of the Third European Conference on Mining Geophysics, EAGE, Belgrade/Amsterdam, 2020

Invited Speaker (1995-2021)

Invited Speaker at the Progress in Electromagnetic Research Symposium (PIERS), July 1995, Seattle.

Invited Keynote Speaker at the 11-th Geophysical Conference of the Australian Society of Exploration Geophysicists, September 1995, Adelaide, Australia.

Invited Speaker at the Electromagnetic Workshop, International Conference "Exploration 97", September 97, Toronto, Canada.

Invited Keynote Speaker at the 4th SEGJ International Symposium, December 1998, Tokyo.

Invited Speaker at the Progress in Electromagnetic Research Symposium (PIERS), July 2000, Boston.

Invited Speaker at the International Geophysical Conference in Miskolc State University, October 2001, Hungary.

Invited Speaker at the Progress in Electromagnetic Research Symposium (PIERS), July 2002, Boston.

Invited Keynote Speaker at the 16-th Geophysical Conference of the Australian Society of Exploration Geophysicists, February 2003, Adelaide, Australia.

Invited Keynote Speaker at the International Workshop on Active Monitoring in the Solid Earth Geophysics, July 2004, Mizunami, Japan.

Invited Keynote Speaker at the Norway-North American Workshop on Petroleum Research Co-operation, November 2005, Washington, D.C.

Invited Keynote Speaker at the First International Scientific Nobel Conference "Innovative Electromagnetic Methods of Geophysics," July 2007, Salekhard, Russia.

Invited Keynote Speaker at the EGM 2007 International Workshop (Innovation in EM, Grav and Mag Methods: a new Perspective for Exploration), April 2007, Capri, Italy.

Invited Speaker of the Beirdichevsky-Weidelt Memorial Symposium, June 2010, Moscow, Russia.

Invited Keynote Speaker at the 22-nd Geophysical Conference of the Australian Society of Exploration Geophysicists, February 2012, Brisbane, Australia.

Invited Keynote Speaker at the 2nd International Workshop on on Surface and Subsurface 4D Monitoring, KACST-KAUST-JCC, March 2014, Saudi Arabia.

Invited Keynote Speaker at the Exploration 17, Sixth Decennial International Conference on Mineral Exploration, Toronto, Canada * October, 2017.

Invited Speaker in the 2018 SEG Annual Meeting's Workshop "Integrated Imaging," Anaheim, California.

Invited Speaker in the 2021 SEG Annual Meeting's Workshop "Filling in the Gaps: The Role of Multi-Physics to Understand Geologic and Critical Mineral Systems" Denver, Colorado.

Invited Lectures (1996-2021)

Invited Lecture at Schlumberger D0ll Research, September 1997, Ridgefield, Connecticut

Invited Short Lecture Course "Advances in EM processing and interpretation", Curtin University, July 1997, Perth, Western Australia.

Invited Lecture at the Oulu University, March 1997, Oulu, Finland.

Invited Lecture at the Miscolc University, March 1997, Miscolc, Hungary.

Invited Lecture at the Tokyo University, May 1997, Tokyo, Japan.

Invited Lecture at the China University of Geosciences, May 1997, Beijing, China.

Invited Lecture at Western Atlas Logging Services, September 1997, Houston.

Invited Lecture at Metal Mining Agency of Japan, December 1998, Tokyo.

Invited Lecture at Metal Mining Agency of Japan, December 1998, Tokyo.

Invited Lecture at Japan National Oil Corporation, April, 2001, Tokyo, Japan

Invited Lecture at Metal Mining Agency of Japan, April, 2001, Tokyo, Japan.

Invited Lecture at the Kyoto University, April, 2001, Kyoto, Japan.

Invited Lecture at Schlumberger Research, August 2001, Paris, France.

Invited Lecture at Resistivity SIG Meeting, ExxonMobil, November 2003, Houston, Texas.

Invited Lectures at Baker Hughes, November 2004, Houston, Texas.

Invited Lecture at Shell, September 2005, Houston, Texas

Invited Lecture at Bergen University, October 2005, Bergen, Norway

Invited Lecture at Moscow State University, June 2006, Moscow, Russia

Invited Lecture at MTEM, June 2007, Edinburgh, Scotland

Invited Lecture at Moscow State University, June 2008, Moscow, Russia

Invited Lecture at Saudi Aramco, May 2010, Dhahran, Saudi Arabia.

Invited Short Course Lectures at PETROLEUM GEOPHYSICS SHORT COURSE PROGRAM of the University of Houston, July, 2012.

Invited Lecture at Moscow State University, June 2014, Moscow, Russia.

Invited Lecture at the ENI, Milan Italy, 2015.

Invited Lecture at KACST, Riyadh, Saudi Arabia, 2016..

Invited Lecture at KACST, Riyadh, Saudi Arabia, 2017.

Invited Lecture at Department of Mineral Resources, Ankara, Turkey, 2017.

Invited Lecture at KACST, Riyadh, Saudi Arabia, 2019..

Invited Lecture at University of Toronto, 2020.

International Projects Participation (1995 - 2021)

NOIGEM (Non-linear global optimization and inversion of geophysical EM data), Project of the Academy of Finland, 1997 - 2000, Finland.

Cooperative Research Project with Petrobras, 2010-2012, Brazil.

Cooperative research project with the China University of Geosciences, 1997-2001, China.

International Project on Active Monitoring in the Solid Earth Geophysics, 2004-2012.

Cooperative Research Projects with Saudi Aramco, 2010-2015, Saudi Arabia.

Cooperative Research Project with KACST, 2016-2020, Saudi Arabia.

Editor and Reviewer for International Journals (1995 - 2022)

Editor, Book Series: Advances in Geological/Geophysical Sciences, Springer

Editor-in-Chief Mineral Exploration Methods and Applications section of “Minerals”

Associate Editor of the Journal of Applied Geophysics

Associate Editor of Frontiers in Earth Science

Editor, Special Issue of Minerals (2019-2021)

Editor, Special Issue of Near Surface Geophysics (2021-2022)

Member of the Editorial Board of the International Journal of Geophysics.

Member of the Editorial Board of the Journal Inverse Problems in Science and Engineering.

Member of the Editorial Board of the International Journal of Applied Physics

Member of the Editorial Board of the Journal of Applied Geophysics.

Member of the Editorial Board of the Journal Minerals

Associate Editor of the journal Petrophysics.

Guest Editor for the Journal of Applied Geophysics, 1999-2001.

Invited Editor for a Special Monograph on Three Dimensional Electromagnetics, Elsevier, 2000-2002.

Invited Editor for a Special Monograph on Active Geophysical Monitoring, Elsevier, 2008-2010.

Reviewer of the research proposals submitted to NSF, DOE, DFG (Deutsche Forschungsgemeinschaft), Canadian Research Council, New Frontiers in Research Fund (Canada), etc.

Reviewer of the papers in the following journals:

Geophysics, Geophysical Journal International, Inversion Theory, Radio Science, Geomagnetism and geoelectricity, An International Journal Computers and Mathematics, IEEE Transactions on Geoscience and Remote Sensing, etc.

Teaching at the University of Utah (1993 - 2021)

Autumn Quarter 1993-1997	Course Title: Inversion Theory, GG 628, 4 cr. hr.
Winter Quarter 1994- 1997	Course Title: Geophysical Field Theory, GG 592, 4 cr. hr.
Spring Quarter 1994-1997	Course Title: Electrical Methods of Exploration, GG 523, 4 cr. hr.
Winter Quarter 1996, 1998	Course Title: Geophysical Applications of Electromagnetic Theory, GG 656, 4 cr. hr.
Spring Quarter 1998	Course Title: EM methods, GG 5920, 3 cr. hr.
Fall Semester 1998-2021	Course Title: Inversion Theory and Applications, GEO 5250, 3 cr. hr.
Fall Semester 1998-2021	Course Title: Inversion Theory and Applications, GEO 6250, 7250, 3 cr. hr.
Fall Semester 1998-2021	Course Title: EM methods, GEO 6920, 2 cr. hr.
Spring Semester 1999-2021	Course Title: Electromagnetic Methods, GEO 5240, 3 cr. hr.
Spring Semester 1999-2021	Course Title: Electromagnetic Methods GEO 6240, 3 cr. hr.
Spring Semester 1999-2021	Course Title: EM methods, GEO 6920, 2 cr. hr.

Research

A. Research Projects:

1. Time Domain Electromagnetic Migration.

Rust Geotech Inc., Grand Junction, Subcontract with DOE. Period of Performance: 1994-1995. Total amount: \$40,000. Granted.

The induction electromagnetic method (EM) is an effective tool for mapping the subsurface soil conductivity distribution. As such, the method potentially can be used to map waste sites by virtue of the conductivity contrast between the waste pit contents and the enclosing earth. It has been determined that the Time Domain EM (TDEM) method provides EM data over a broad spectrum of frequencies at a reasonable cost. The effectiveness of the TDEM method for mapping DOE waste sites was demonstrated at three waste sites within the Radioactive Waste Management Complex (RWMC). A problem of practical interest is the imaging of inhomogeneous underground structures with electromagnetic data. In this research project we used time domain electromagnetic migration method to solve this problem.

2. Very Early Time Electromagnetics (VETEM).

Subcontract with DOE, Buried Waste Integrated Demonstration (BWID) Program. Period of Performance: 1994 - 1997. Total amount for 1995-96 financial years: \$75,000. Granted.

This project focused on both hardware and software development for shallow environmental and engineering problems, specifically for buried waste sites. The main goal of the project was to develop a Very Early Time Electromagnetic (VETEM) system, that was not only sensitive to structures in the shallow subsurface, but also gave an information on dielectric permittivity, as well as electrical conductivity properties. The main goal of the research conducted by Prof. Zhdanov was to develop imaging method for high frequency data and corresponding EM software.

3. Tensor Electromagnetic Profiling across the San Andrea's Fault.

Subcontract with NSF. Period of Performance: 1994-1996. Total amount: \$36,811. Granted.

This project was directed to collect and analyze a continuous tensor electromagnetic profile (EMAP) across the San Andreas Fault in central California. The experiment had the potential to resolve targets of direct relevance to the earthquake process including high conductivity and presumably high pore pressure regions within the fault zone, resistive and hence impermeable membranes between the fault zone and the country rock and enhanced crustal conductivity below the brittle-ductile transition. Prof. Zhdanov participated in the analysis and interpretation of EMAP data.

4. Underground Imaging by Electromagnetic Migration.

NSF Grant No. EAR-9403925, Period of Performance: 1995 - 1996. Total amount: \$100,000. Granted.

This project was directed to the development of the methods for better imaging, delineation and characterization of underground structures by using electromagnetic geophysical data. Electrical conductivity depends on many properties of the rocks, such as composition, porosity, temperature, pressure, etc. That is why the imaging of the underground geoelectrical structures is very important for a wide range of practical applications, from mineral exploration to waste and construction site characterization.

The majority of existing inversion electromagnetic algorithms uses iterative solution based on repeated forward modeling, which is a computationally costly procedure, especially for multidimensional problems. The main goal of this project was developing a new approach to underground imaging based on a direct rapid transformation of the observed electromagnetic field, which was called *electromagnetic migration*.

5. New Approach to Interpretation of Airborne Electromagnetic Data.
Oak Ridge National Laboratory, Subcontract with DOE. Period of Performance: 1994-1996. Total amount: \$70,100. Granted.

The main goal of this research was developing a new method of delineating and characterizing underground magnetic and conductive structures using airborne magnetic and electromagnetic data. A new approach was based on calculation of the so-called total normalized gradient of the observed field and its downward extrapolation. The numerical results demonstrated principal possibility of determination of the parameters of the anomalous conductive or magnetic structures using this method. This project was aimed to make the spatial-filtering technique and the total normalized gradient method a practical, easy-to-implement interpretation tool for imaging of airborne data.

6. Fast 3-D Electromagnetic Inversion based on Quasi-Linear Approximation.
NSF Grant No. EAR-9614136. Period of Performance: 1997 - 1999. Total amount: \$107,000. Granted.

The objectives of the project was developing fast and stable 3-D geo-EM inversion method, which could be applied to real geophysical data using conventional PC or Work Stations. The method of solving this problem was based on a new approach to a rapid 3D EM inversion. The forward scattering problem was solved using a new quasi-linear (QL) approximation. As a result, the nonlinear inverse problem was reduced to a set of linear inverse problems.

7. Electromagnetic modeling.
Contract with Shell International Exploration and Production B. V. Period of Performance: 1997 - 1999. Total amount: \$67,500. Granted.

8. Numerical electromagnetic modeling and inversion.
Contract with Japan National Oil Corporation. Period of Performance: 1997 - 1999. Total amount: \$71,000. Granted.

9. Naval Research Laboratory Grant for Electromagnetic Modeling and Inversion. Period of Performance: 1996 - 2000. Total amount: \$95,000. Granted.

10. Interpretation of the transient electromagnetic (TEM) data in the Bingham Creek area in Salt Lake County, Utah. Mineral lease fund. Period of Performance: 1997 - 1998. Total amount: \$10,000. Granted.

11. Analysis and Design of Computational Systems for Three-dimensional Electromagnetic Modeling and Inversion. NSF Grant No. # 9987779. Period of Performance: 2000 - 2003. Total amount: \$250,000. Granted.

This project contributes to the development of the underlying physical and mathematical methods and principles of a new technology of electromagnetic (EM) imaging the objects in nontransparent media based on EM forward and inverse problem solutions. Prof. Zhdanov proposes to develop the computational system based on applying compression and numerical image enhancement and sharpening in the solution of EM problems. The compression allows transforming the original Maxwell's equations into a compressed domain, and the solution is obtained there in a compact form. Image sharpening helps to increase the resolution and stability of inverse imaging by applying regularization method based on focusing stabilizers. In summary, the main goal of this project is to develop solutions of different type of scientific and engineering problems involving inverse EM imaging of the objects in nontransparent media.

12. Naval Research Laboratory Grant for Electromagnetic Modeling and Inversion. Period of Performance: 2001 - 2005. Total amount: \$130,000. Granted.

13. Interpretation of gravity survey in the area of Tooele Army Depot. Period of Performance: 2002. Total amount: \$14,000. Granted.

14. Development of New Geophysical Technique for Mineral Exploration and Mineral Discrimination Based on Electromagnetic Methods. Period of Performance: 2004-2007. Total amount: \$1,500,000. Granted.

The main goal of this project is to develop a new geophysical technique for subsurface material characterization, mineral exploration and mineral discrimination, based on electromagnetic methods. The envisioned new technique will be based on examining spectral induced polarization (IP) effects in electromagnetic (EM) data using modern distributed acquisition systems and advanced methods of 3-D modeling and inversion.

B. Research Activities in the Consortium for Electromagnetic Modeling and Inversion (CEMI):

CEMI is a research and educational program in applied geophysical electromagnetics based at the University of Utah. It was founded more than twenty-five years ago by Professor G.W. Hohmann.

In February 1995, Prof. Zhdanov was appointed as Director of the Consortium. During 1995-2021 more than thirty companies were participating in CEMI for different periods, including Advanced Power Technologies, Inc. (USA), AGIP (Italy), Baker Atlas (USA), BHP (USA), CRA Exploration (Australia), Electromagnetic Instruments, Inc. (USA), EXXON (USA), MOBIL (USA), Geological Survey of Japan (Japan), INCO (Canada), International Energy Services (USA), Japan National Oil Corporation (Japan), MINDECO (Japan), MIM (Australia), NAVY Research Lab (USA), Newmont (USA), Rio Tinto - Kennecott Exploration (USA, UK), Schlumberger-Doll Research (USA), Schlumberger Oilfield Services (USA), Shell International Exploration and Production (USA - The Netherlands), 3-J Tech Co. (Taiwan), USGS (USA), UNOCAL (USA), Western Mining (Australia), Sumitomo Metal Mining Co. (Japan), Zonge Engineering (USA), BGP China National Petroleum Corporation (China), BHP Billiton World Exploration Inc. (Canada - Australia), ENI S.p.A. (Italy), ExxonMobil Upstream Research Company (USA), Norsk Hydro (Norway), Statoil (Norway), Rocksource (Norway), Petrobras (Brazil), etc.

Collectively the financial contribution to Zhdanov's research program since 1994 amounts to ~\$ 11 M. Equally important is that sponsors provide research topics, data sets, and industry internships for the graduate students. The areas of CEMI research interest have been and continue to be electromagnetic modeling and inversion methods for accurate and efficient electromagnetic data analysis in regions with complex structures.

For the 2011-2021 years, under the direction of Prof. Zhdanov, the CEMI's major research interests were as follows:

1. Developing of the 3D forward modeling methods in the frequency domain and time domain for different arrays of receivers and transmitters;
2. Constructing effective multi-dimensional inversion schemes for surface and borehole EM observations.
3. Elaborating of the rapid imaging algorithms for surface and borehole EM data;
4. Study of the methods of modeling and interpretation of airborne magnetic, gravity, and electromagnetic data.
5. Analysis and testing of new modeling and inversion methods on practically realistic models and real data.

Departmental Committee Service (1993 - 2021)

1993-1994:

Undergraduate Affairs Committee (member)

1994-1995:

Undergraduate Affairs Committee (member)

Ad Hoc Committee for Geophysics Curriculum (member)

1995-1996:

Graduate Affairs Committee.

Geophysics Curriculum Committee (Chair)

Geophysics Special Funds Committee (member)

Distinguished Lecture Series (Autumn Quarter)

1996-1997:

Undergraduate Affairs Committee (member)
Geophysics Curriculum Committee (Chair)
Geophysics Special Funds Committee (member)
Tenured Faculty Review Committee (Chair)
Merit Review Committee (member)
Computer Committee (member)

1997-1998:

Graduate Affairs Committee (member)
Geophysics Special Funds Committee (member)
Computer Committee (member)

1998-1999:

Geophysics Special Funds Committee (member)
Computer Committee (member)
Merit Review Committee (member)

1999-2000:

Geophysics Special Funds Committee (member)
Computer Committee (member)
Merit Review Committee (Chair)

2000-2001:

Geophysics Special Funds Committee (member)
Computer Committee (member)

2001-2002:

Geophysics Special Funds Committee (member)
Computer Committee (member)

2002-2003:

Geophysics Special Funds Committee (member)
Graduate Affairs Committee (member)

2003-2004:

Geophysics Special Funds Committee (member)
Graduate Affairs Committee (member)

2004-2005:

Geophysics Special Funds Committee (member)
Graduate Affairs Committee (member)
Ad Hoc Committee on strategic plan for future faculty retirements and hires (Chair)

2005-2007:

Graduate Affairs Committee (member)
Geophysics Special Funds Committee (member)
Committee on strategic planning (member)

2008-2009:

Undergraduate Affairs Committee (member)
Geophysics Special Funds Committee (member)
Computer Committee (member)
Petroleum Geology Faculty Search Committee (member)

2009-2010:

Seismology and Seismic Exploration Faculty Search Committee (Chair)

Executive Committee (Computer Chair)
Undergraduate Affairs Committee (member)
Undergraduate Programs, Geophysics (member)
Computer Committee (Chair)
Career Day (member)
GG Roundtable (member)

2010-2011:

Geophysics Special Funds Committee (member)
Computer Committee (Chair)
Search Committee for New Geophysics Faculty (Chair)
Career Day (member)

2011-2012:

Geophysics Special Funds Committee (Chair)
Computer Committee (Chair)
Search Committee for New Geophysics Faculty (Chair)
Career Day (member)

2012-2013:

Geophysics Special Funds Committee (Chair)

2013-2014:

Geophysics Special Funds Committee (Chair)

2014-2016:

Geophysics Special Funds Committee (Chair)

2015-2016

Space Committee

2016-2017

DLS

2017-2018

Merit Review Committee
Graduate Affairs Committee.

2018-2019

Merit Review Committee
Graduate Affairs Committee

2019-2020

Merit Review Committee
Graduate Affairs Committee
Curriculum Committee (Chair)

2020-2021

Award Committee

College Committee Service

1999-2000:

College of Mines and Earth Science Council (member)

2005-2006:

College of Mines and Earth Science Computer Committee (Chair)

2008-2009:

College of Mines and Earth Science Faculty Relationship Committee (member)

University Committee Service

1996-1999:

University Academic Evaluation and Standards Committee (member)

2000-2001:

University Academic Evaluation and Standards Committee (member)

2001-2004:

University Academic Evaluation and Standards Committee (Chair)

2001-2004:

University Graduate Council (member)

2004-2007: University Research Committee (member)