Ioan Sturzu, PhD.

isturzu@gmail.com   **(832) 773-2396**

PROFILE

Senior researcher and software engineer in computational physics and large-scale scientific software. Expertise: numerical linear algebra; PDE discretization and solvers (finite difference/finite volume) for heat, wave, and elasticity; inverse problems; differentiable physics with autodiff; reduced-order modeling. Domain experience includes geophysics (diffraction imaging, seismic inversion and migration, anisotropic and heterogeneous media), imaging/spectropolarimetry, CFD, heat transfer, wave propagation, and quantum models. Built and maintained C++/Python HPC codebases with MPI, OpenMP, and CUDA; integrated simulation libraries (VTK, Trilinos, Eigen, OpenFOAM, MOOSE); and delivered packaging, CI, and documentation for research users. Geometry and meshing: mesh QA/repair, voxelization, and signed-distance fields for simulators. Data analysis and signal processing: PCA/ICA/DMD, curvelets; classical and ML methods including SOM, SVM, and K-means. Inventor and co-developer of industrial diffraction-imaging methods used to detect fractured zones in the Earth's subsurface. Clear written and oral communicator. Multilingual: English, French, Romanian.

TECHNICAL SKILLS

Languages	C, C++, Python, Fortran, Java, Matlab, Mathematica
HPC	MPI, OpenMP, CUDA, Slurm, PVM; BLAS/LAPACK/Eigen/ScaLAPACK; CPU/GPU kernels; containers and job arrays
ML/Num	NumPy, SciPy, JAX, PyTorch, Numba; automatic differentiation; GMRES, CG, Newton–Krylov
Build/UX	CMake, pybind11; packaging with venv or Poetry; Qt
Tools	Git, GDB; UNIX/Linux; VS Code, Eclipse; LaTeX, Markdown, YAML, RST; Blender
CI/CD	Git-based peer reviews and protected branches; PR templates and checklists; CI gates (lint, type, unit, integration); semantic versioning and release notes; GitLab CI staged pipelines; unit/integration tests; release notes and docs
Optimization	gprof, perf, nsys, cProfile, line_profiler
PDE/Sim	Finite-difference and finite-volume solvers for heat/wave; inverse problems; multi-physics coupling
Model Reduction	Dynamic Mode Decomposition (DMD)
Diff. Physics	JAX-based differentiable PDE solvers for multi-physics simulations
Sim Libraries	VTK, Trilinos, Eigen, OpenFOAM, MOOSE
Controls	Optimization and dynamic programming; control-oriented system identification; differentiable costs for embodied simulations
Geom/Meshing	Mesh QA/repair; voxelization of anatomical models; occupancy and signed-distance fields
Data/Formats	HDF5/NPZ volumes; Blender mesh formats; reproducible configs and run logs

PATENTS

- **I. Sturzu**, A.M. Popovici, T.J. Moser, I. Musat, and N. Tanushev "Diffraction Imaging Systems and Methods using Specularity Gathers," U.S. Patent No. 10,324,204 B1 (Issued 06/08/2019).
- N. Tanushev, I. Musat, **I. Sturzu** and A.M. Popovici "Beam Tomography Systems and Methods," U.S. Patent No. 12,147,003 B1 (Issued 11/19/2024).
- A.M. Popovici, **I. Sturzu**, T.J. Moser, I. Musat, and N. Tanushev "Time Migration Diffraction Imaging Systems and Methods," U.S. Patent No. 9,726,771 B1 (Issued 08/08/2017).
- A.M. Popovici, S. Fomel, N. Tanushev, I. Musat, **I. Sturzu**, and C. Tsingas "Fast Beam Migration Using Plane-Wave Destructor Beam Forming," U.S. Patent No. 9,594,176 B1 (Issued 03/14/2017).

CURRENT POSITION

Nanohmics, Inc.   **Senior Software Engineer – Scientific Computing**
Austin, TX   July 2021 - present

Research, design and develop multi-physics software applications for government and commercial clients. Code, maintain, test and install software applications for computational physics simulations and signal analysis.

- Developed and maintained calibration and processing software for a uncooled handheld LWIR multi-spectral camera tuned via a reconfigurable plasmonic metasurface filter for broadband and multi-color imaging. Calibration: absolute temperature and emissivity mapping. Processing: concealed-threat and camouflage detection, thermal-crossover contrast enhancement, and standoff spectral pyrometry.
- Developed and maintained a high-performance signal analysis toolkit for fluid flows based on dimensionality reduction (DR) techniques (Principal Component Analysis, Dynamic Mode Decomposition, Koopman Operator Theory; ScaLAPACK).
- Developed and maintained a complex C/C++ code designed to simulate the material response to incident laser radiation.
- Developed and maintained a Python-based development toolkit designed to enable user-friendly tools and workflows based on YAML configuration files, for multi-physics HPC applications in cluster API's.
- Developed and maintained a Python code used to calibrate and process data acquired from a metaoptic imaging spectropolarimeter.
- Developed and maintained a postprocessing Python code designed to invert for values of physical parameters using results of thermographic measurements.
- Implemented reduced-order modeling with DMD for CFD simulations.
- Built a Blender-to-voxel pipeline for human and organ meshes; produced occupancy/SDF grids and per-voxel material maps for PDE solvers and multi-physics simulation.
- Established SLURM-based batch workflows, containers, and CI.
- Ran peer code reviews with Git pull requests: required reviewers and code owners, CI-gated merges (lint, type, unit/integration), and protected branch policies.
- Prepared software releases, wrote software documentation.
- Participated in key research role in Grant Funded Research Projects: wrote proposals, performed research, wrote reports. Wrote research articles for publication.

PROFESSIONAL EXPERIENCE

Z-Terra, Inc.   **Principal Scientific Software Developer**
Houston, TX   August 2010 - July 2021

- Researched, designed and developed software solutions for the upstream oil and gas industry. Code, maintain, test and install software applications for seismic data processing. Code review using git. Developed and applied in real projects innovative methods for diffraction imaging, demigration and anisotropic migration.
- Developed and maintained ZTK, a complex and highly efficient proprietary software for Kirchhoff migration; features: PSDM, PSTM, Angle-gathers, Anisotropy: TTI+Orthorhombic, Ocean Bottom Migration, Specularity gathers for Diffraction Imaging.
- Developed software applications for seismic data processing: Tomography, LS Inversion, Demigration, AMO, PCA, SOM, KMeans. Applied robustness analysis to existent algorithms.
- Performed seismic processing: PSTM, PSDM, Diffraction Imaging in time or depth, demigration, tomographic velocity updates. Worked in leading role in more than twenty land or marine seismic projects. Participated in certain degrees in many other projects.
- Developed and tested algorithms, maintained software libraries. Designed user interfaces and integrated products in customized software packages. Prepared documentation for software installation, usage and maintenance. Performed post-software development, testing and scientific validation of mathematical models.

- Wrote proposals for Grant Funded Research Projects, performed research, wrote reports. Wrote research articles for publication.

Signal Estimation Technology **Research Geophysicist**

Calgary, AB, Canada June 2009 - July 2010

- Developed, implemented, installed, documented and tested applications software for the Seismic Industry. Performed research for implementing new methods (data-segmentation of seismic images, multi-resolution analysis, multivariate; artificial neural network classification).
- Provided client support.
- Prepared and gave presentations.

Department of Geology and Geophysics **Postdoctoral Research Associate**

Texas A&M University August 2007 - May 2010

- Performed research in cutting-edge topics of Petroleum Seismology (acquisition and decoding blended marine seismic data, data-driven transform of seismic data).
- Directed research projects and gave seminars for graduate students.

Department of Physics and Astronomy **Postdoctoral Research Associate**

Ball State University July 2003 - December 2006

- Performed research (reliability and fault tolerant properties of quantum dot devices against jointly defects at the manufacturing level and thermal effect).
- Wrote and published articles, prepared research projects for National Science Foundation, presented papers in conferences, directed research projects.

Beckman Institute for Advanced Science and Technology **Visiting Scholar**

University of Illinois at Urbana-Champaign December 2002 - June 2003

- Performed research in the theoretical study of the physical properties of carbon nanotubes (CNT).
- Conducted modeling and simulation of CNT-based electronic and electromechanical devices.

Department of Physics **Assistant Professor**

University of Brasov February 1992 - December 2006

- Taught General Physics classes for engineering students and advanced Physics classes for students in Science.
- Performed research (Wave propagation in inhomogeneous media, Quantum Mechanics.)
- Directed graduate student research projects.

EDUCATION

PhD. Theoretical Physics

University of Bucharest, Romania 1997 - 2002

B.S./M.S. Theoretical Physics

University of Bucharest, Romania 1986 - 1991

PROFESSIONAL CERTIFICATIONS

MITx 6.00.1x: Introduction to Computer Science and Programming Using Python

Certificate ID: 67a26ae8541c463897b5b64aefa3b2d8

MITx 6.00.2x: Introduction to Computational Thinking and Data Science

Certificate ID: 15e9791902cc4f3587aa37dcff46a66d

OTHER PATENT APPLICATIONS

- A.M. Popovici, P. Sava, **I. Sturzu**, S. Hardesty, I. Musat, and N. Tanushev "Seismic Imaging Systems and Methods Using Extended Image Gathers," U.S. Provisional Patent Application No. 61/771,013 (Filed 02/28/2013).
- **I. Sturzu**, A.M. Popovici, T.J. Moser "Diffraction Imaging Systems and Methods Employing Principal Component Analysis (PCA) Filtering of Specularity Gathers," U.S. Provisional Patent Application No. 62/435,617 (Filed 12/16/2016).

MEMBERSHIPS

Sigma Xi - Active Member
Society of Exploration Geophysicists (SEG) - Active Member

PROFESSIONAL CONFERENCES

SEG Annual Meeting 2017 - Program Committee Member
Section Organizer, Session Chair: Diffraction Imaging and Modelling

GRANT FUNDED RESEARCH PROJECTS

- "Extensible Toolkit for Signal Analysis," Air Force SBIR AF221-0029, manager: Sebastian Liska, Nanohmics Inc., Phase I: 2022-2023, Phase II: 2023-.
- "Mutliphysics Modeling Software for Directed Energy Bioeffects," Air Force SBIR AF191-017, manager: Sebastian Liska, Nanohmics Inc., Phase II: 2022-2023.
- "Compact Imaging Spectropolarimeter Based On Multifunction Meta-optic," NASA SBIR 80NSSC22CA172, manager: Mark Lucente, Nanohmics Inc., Phase II: 2022-2023.
- "High Resolution Diffraction Imaging of Natural Fracture Zones in Unconventional Shale Reservoirs for Well Placement Optimization," Department of Energy Grant DE-FOA-0000969, manager: Alexander M. Popovici, Z-Terra Inc., Phase I: 2014-2015, Phase II: 2016-2017.
- "High Resolution Diffraction Imaging of Natural Fracture Zones in Unconventional Shale Reservoirs for Well Placement Optimization," Department of Energy Grant DE-FOA-0000969, manager: Alexander M. Popovici, Z-Terra Inc., Phase I: 2014-2015, Phase II: 2016-2017.
- "Enterprise Software for Interactive and Super-Efficient Processing of Large Multi-Dimensional Datasets," Department of Energy Grant DE-SC0007449, manager: Alexander M. Popovici, Z-Terra Inc., 2012.
- "Center of Excellence in Computational Nanoscience," State of Indiana 21st Century Research and Technology Fund, managers: Ronald Cosby, Yong Joe and Mahfuza Khatun - Ball State University, 2003 - 2005.
- "A New Class of Nanostructured Materials: Graphite Polyhedral Crystals," Department of Energy Grant DE-FG02-01ER45932, manager: Slava V. Rotkin - Beckman Institute, 2002-2003.
- "Manipulation of Carbon Nanotubes for Integrated Nano-electromechanical Systems (NEMS)" University of Illinois at Urbana Champaign CRI grant, manager: Slava V. Rotkin - Beckman Institute, 2002-2003.
- "An Informational Probabilistic Study of Theoretical and Applied Aspects of Physical Measurements," National Council of Scientific Research (CNCSIS Romania) Grant 33630-12-5, co-manager with Prof. Spiridon Dumitru, Physics Department, Transylvania University Brasov, Romania, 1999-2001.
- "Imperfect Measurements using Stern-Gerlach Device ," National Council of Scientific Research (CNCSIS Romania) Grant 5005-1338, co-manager with Prof. Spiridon Dumitru, Physics Department, Transylvania University Brasov, Romania, 1998.
- "Solving Some New Models for Stern-Gerlach Experiment ," National Council of Scientific Research (CNCSIS Romania) Grant 4005-B1, co-manager with Prof. Spiridon Dumitru, Physics Department, Transylvania University Brasov, Romania, 1997.
- "Wave propagations in non-homogenous media," European Project COPERNICUS CIPA-CT94-0132, manager: Prof. P.P.Delsanto, Physics Department, Turin Polytechnics, Italy, 1997-1998.

PEER REVIEWED PUBLICATIONS

Independent citations: 78 citations for 15 articles.

1. T.J. Moser, M.A. Pelissier, A. Ball, **I. Sturzu**, A.M. Popovici Diffraction Modelling and Imaging of Fluid Escape Features, South China Sea 79th EAGE Conference and Exhibition 2017 Extended Abstracts of the 79th EAGE Conference & Exhibition, (2017).

2. M. Pelissier, T.J. Moser, C. Yu, J. Lang, **I. Sturzu**, A.M. Popovici Interpretation value of diffractions and sub-specular reflections - applications on the Zhao Dong field, - First Break - 35 (2), pp. 61-68 (2017).

3. T.J. Moser, M. Pelissier, C. Yu, A.M. Popovici, **I. Sturzu** Structural and stratigraphic diffraction-imaging applications on the Zhao Dong Field, Bohai Bay, China - SEG Technical Program Expanded Abstracts 2016, 1753-1757 (2016).

4. T.J. Moser, L. Jing, P. de Groot, A. Sirazhiev, **I. Sturzu**, A.M. Popovici Diffraction Imaging of the Zhao Dong Field, Bohai Bay, China 77th EAGE Conference and Exhibition 2015 Extended Abstracts of the 77th EAGE Conference & Exhibition 2015, We-N116-05 (2015).

5. A.M. Popovici, **I. Sturzu**, T.J. Moser High Resolution Diffraction Imaging of Small Scale Fractures in Shale and Carbonate Reservoirs - Proceedings of the Unconventional Resources Technology Conference, San Antonio, Texas, 20-22 July 2015, pp. 1121-1129.

6. **I. Sturzu**, T.J. Moser, A. M. Popovici, T.J. Moser, S. Sudhakar Diffraction imaging in fractured carbonates and unconventional shales - Interpretation - 3 (1), SF69-SF79 (2015).

7. **I. Sturzu**, A.M. Popovici, M.A. Pelissier, J.M. Wolak and T.J. Moser Diffraction Imaging Of The Eagle Ford Shale - First Break - 32 (11), pp. 49-59 (2014).

8. V. Veenhof, T.J. Moser, **I. Sturzu**, D. Dowell, A.M. Popovici, and F. Nieuwland Diffraction Imaging in the North Sea, Case Study Over the Dutch Q16 Fields - Extended Abstracts of the 76th EAGE Conference & Exhibition 2014.

9. **I. Sturzu**, T.J. Moser and A.M. Popovici, Diffraction Imaging Using Specularity Gathers - Journal of Seismic Exploration 23, 1, pp. 1-18 (2014).

10. A.M. Popovici, T.J. Moser and **I. Sturzu**, Diffraction Imaging Delineates Small-Scale Natural Fractures (Method Images Small-Scale Fractures) - American Oil and Gas Reporter, 57, 1, pp. 89-93 (2014)

11. **I. Sturzu**, A.M. Popovici, N. Tanushev, I. Musat, M.A. Pelissier and T.J. Moser, Specularity Gathers for Diffraction Imaging, Extended Abstracts of the 75th EAGE Conference & Exhibition 2013, We-01-03 (2013).

12. A.M. Popovici, N. Tanushev, **I. Sturzu**, I. Musat, C. Tsingas and S. Fomel, Fast Beam Migration Using Plane Wave Destructor (PWD) Beam Forming, Extended Abstracts of the 75th EAGE Conference & Exhibition 2013, We-02-12 (2013).

13. G. Anduwan, J. Padgett, M. Kuntzman, M.K. Hendrichsen, **I. Sturzu** , M. Khatun and P.D. Tougaw, Fault-Tolerance and Thermal Characteristics of Quantum-dot Cellular Automata - Journal of Applied Physics 107, 11, 11430 (2010).

14. L.T. Ikelle and **I. Sturzu** - Reducing the pressure on data acquisition and processing: II- Data-driven compression using conic coding - Journal of Seismic Exploration 18, 2, pp. 119-133 (2009).

15. M.Khatun, T.Barclay, **I. Sturzu** and P.D.Tougaw, Fault tolerance properties in Quantum-dot Cellular Automata devices - Journal of Physics D: Applied Physics 39, pp. 1489-1494 (2006).

16. M.Khatun, T.Barclay, **I. Sturzu** and P.D.Tougaw, Fault Tolerance Calculations for Clocked Quantum-dot Cellular Automata Devices - Journal of Applied Physics 98, 094904 (2005).

17. **I. Sturzu** and M.Khatun, Quantum Calculation of Thermal Effect in Quantum-dot Cellular Automata - Complexity 10, 4, pp. 73-78 (2005).

18. **I. Sturzu**, L.Kanuchok, M.Khatun and D.Tougaw, Thermal Effect in Quantum-dot Cellular Automata - Physica E: Low Dimensional Systems and Nanostructures, 27, 1-2, pp.188-197 (2005).

19. **I. Sturzu** - Topics on the stochastic treatment of the evolution of an open quantum system - Romanian Journal of Physics 47, pp. 553-560 (2002).

20. **I. Sturzu** - Explicit Euler method for solving the time-dependent Schrödinger equation - Phys. Rev. A 64, 054101 (2001).

21. N.Cretu, G.Nita, **I. Sturzu**, C.Rosca - A semianalytic method for study the acoustic pulse propagation in elastic inhomogeneous 1-D media - Integral Methods in Science and Engineering 1998, pp.107-112, Chapman&Hall, Pitman Research Notes in Mathematics Series, ISBN 1-58488-146-1 (1999).

22. N.Cretu, P.P.Delsanto, G.Nita, C.Rosca, M.Scalerandi and **I. Sturzu** -Ultrasonic pulse propagation in inhomogeneous one-dimensional media - J.Acoust.Soc.Am.104, 1, pp.57-63 (1998).

23. M.Scalerandi, N.Cretu, S.T.Chiriacescu, **I. Sturzu**, C.Rosca - A Method for Simulation of Gaussian Pulse Propagation in an Elastic Medium with Periodical Inhomogeneity - Computational Acoustics and its Environmental Applications, Computational Mechanics Publications, Southamton-Boston, II, pp.161- 168, ISBN:1-85312-459-1 (1997).

TECHNICAL NOTES (INTERNAL REPORTS)

1. Ioan Sturzu, Sebastian Liska, Carter Dodd. "Peridynamic Simulations for Damage Estimation in Biological Tissues," Technical Note TN-2179-7, Nanohmics Inc. (Released October 17, 2025, revised October 22, 2025).

2. Ioan Sturzu, Sebastian Liska, Carter Dodd. "Bubbles and Micro-cavitation — Basic SESE Models and Literature Review," Technical Note TN-2179-6, Nanohmics Inc. (Released September 24, 2025).

3. Ioan Sturzu, Sebastian Liska, Carter Dodd. "Background on the Implementation of Non-Fourier Single Phase Lag Heat Models in MOEBIUS," Technical Note TN-2212-1, Nanohmics Inc. (Released February 11, 2025, revised August 27, 2025).

4. Ioan Sturzu, Sebastian Liska, Carter Dodd. "Convolutional Perfectly Matched Layers (CPML) Implementation in SESE," Technical Note TN-2179-5, Nanohmics Inc. (Released June 30, 2025, revised July 31, 2025).

5. Ioan Sturzu, Sebastian Liska, Carter Dodd. "Cross-validation for Model Selection in Surrogate Modeling," Technical Note TN-2221-1, Nanohmics Inc. (Released October 9, 2025).

6. Ioan Sturzu, Chris Mann. "A Literature Review on Nonlinearity in Microbolometer Measurements," Technical Note TN-2193-1, Nanohmics Inc. (Released March 30, 2025).

7. Ioan Sturzu, Travis Jalowiec, Sebastian Liska. "Calibration of a SFDI System," Technical Note TN-2455-1, Nanohmics Inc. (Released February 1, 2025, revised February 25, 2025).

8. Ioan Sturzu, Sebastian Liska, Carter Dodd. "Revisited Theoretical Analysis of Laser Heating at the Interface Between Absorbing and Transparent Media," Technical Note TN-2179-4, Nanohmics Inc. (Released September 4, 2024, revised November 6, 2024).

9. Ioan Sturzu, Sebastian Liska, Carter Dodd. "Thermo-Optics Solver for SESE Theoretical Background," Technical Note TN-2179-3, Nanohmics Inc. (Released June 6, 2024, revised November 6, 2024).

10. Ioan Sturzu, Sebastian Liska, Carter Dodd. "3D Ablation Plume Modeling," Technical Note TN-2179-2, Nanohmics Inc. (Released August 8, 2023, revised July 17, 2025).

11. Ioan Sturzu, Sebastian Liska, Carter Dodd. "Analytic Solution for the Dirichlet Problem of Cooling for a Metal Sphere," Technical Note TN-2179-1, Nanohmics Inc. (Released July 7, 2023).

12. Ioan Sturzu, Sebastian Liska. "Distributed-Memory Parallel Processing of DMD Algorithms," Technical Note TN-2213-2, Nanohmics Inc. (Released March 10, 2023, revised April 27, 2023).

13. Ioan Sturzu, Mark Lucente, Austin Ferrie. "Data-Driven Calibration of a Meta-Optic Imaging Spectro-Polarimeter Using Polynomial Least Squares Fit," Technical Note TN-2207-1, Nanohmics Inc. (Released January 31, 2023).

14. Ioan Sturzu, Sebastian Liska. "DMD Algorithms," Technical Note TN-2213-1, Nanohmics Inc. (Released December 16, 2022, revised April 27, 2023).

CONFERENCE PROCEEDINGS

1. Alexander Mihai Popovici, Ioan Sturzu, Iulian Musat, Nick Tanushev, Tijmen Moser and Constantine Tsingas, High Resolution Diffraction Imaging of Small Scale Fractures Fields in Unconventional Shale Plays, 18th Middle East Oil & Gas Show and Conference (MEOS), Mar 10 - 13, 2013, Society of Petroleum Engineers, 164267-MS, ISBN 978-1-61399-249-4.

2. Alexander Mihai Popovici, Nick Tanushev, Ioan Sturzu, Iulian Musat, Constantine Tsingas and Sergey Fomel, Fast Beam Migration using Plane Wave Destructor (PWD) Beam Forming, 18th Middle East Oil & Gas Show and Conference (MEOS), Mar 10 - 13, 2013, Society of Petroleum Engineers, 164259-MS, ISBN 978-1-61399-249-4.

3. A.Padgett, G.Anduwan, M.Kuntzman, I.Sturzu, and M.Khatun, Modeling and Simulation of Fault Tolerant Quantum-dot Cellular Automata Devices, Bulletin of the American Physical Society, 54,1, K1.250, 2009 APS March Meeting, Pittsburgh, March 16-20.

4. M.Khatun, G.Anduwan, and I.Sturzu, Fault-Tolerant Characteristics of Quantum-dot Cellular Automata Devices, Bulletin of the American Physical Society, 54,1, EB.1, 2009 APS March Meeting, Pittsburgh, March 16-20.2. I.Sturzu, T.Barclay and M.Khatun - Numerical Simulations for Quantum-dot Cellular Automata Devices, 2005 Joint Spring Meeting Ohio Section of APS and the Southern Ohio Section of AAPT, Bulletin of the American Physical Society, D6.6, April 8–9, 2005, Dayton, OH.

5. I.Sturzu and M.Khatun - Quantum Method for Fault Tolerance Calculations in Quantum-dot Cellular Automata Clocked Devices, Bulletin of the American Physical Society, 50, page 1404, March Meeting, Los Angeles, March 21-25, 2005.

6. T.Barclay, I.Sturzu and M.Khatun, Defect Tolerance Properties Calculations for Quantum-dot Cellular Automata using intercellular Hartree Approximation, Bulletin of the American Physical Society, 50, page 1405, March Meeting, Los Angeles, March 21-25, 2005.

7. M.Khatun, I.Sturzu, L.Kanuchok and D.Tougaw, Fault Tolerance Calculations for Quantum-dot Cellular Automata devices, Bulletin of the American Physical Society, 50, page 1001, March Meeting, Los Angeles, March 21-25, 2005.

8. I.Sturzu and M.Khatun, Quantum calculation of the QCA response function for non-zero temperatures - Bulletin of the American Society of Ohio Section Spring Meeting, B7.800, Ohio University, Athens, Ohio, April 16-17, 2004.

9. M.Khatun, I.Sturzu, L.Kanuchok and D.Tougaw, Statistical Study of Thermal Effect in Quantum-dot Cellular Automata - Bulletin of the American Physical Society, 49, page 978, March Meeting, Montreal, Canada, March 23-26, 2004.

10. T.S.Chiriacescu, N.Cretu, C.Rosca and I.Sturzu - Computer simulation model for rectangular pulses propagation in elastic medium with periodical in-homogeneities, Proceedings of the 4th National Symposium of the Romanian Association of Non-destructive Examinations, pp. 3-4, 1997.

TEACHING EXPERIENCE

- General Physics (Engineering)   1994-2002
- Solid State Physics (Engineering)   1997-2002
- Electrodynamics and Theory of Relativity (Science)   1992-2002
- Thermodynamics and Statistical Physics (Science)   1992-2002
- Quantum Optics and Lasers (Science)   1997-2002

PUBLISHED TEXTBOOKS

- **I.Sturzu** - Essentials in Physics - A Textbook for Students in Engineering, Axa Publishing House, Bucharest, 2001, ISBN: 973-97408–7-3 (in English).
- N.C.Cretu, **I.Sturzu** – Electrodinamica si Teoria Relativitatii (Electrodynamics and Theory of Relativity) - Axa Publishing House, Bucharest, 1998, ISBN: 973-97408-4-7 (in Romanian).

ORAL PRESENTATIONS AND POSTERS

1. Popovici A. M., Sturzu I., Moser, T. J., High Resolution Azimuthal Diffraction Imaging of Natural Fracture Zones in Unconventional Shales, AAPG Annual Convention & Exhibition in Houston, 2-5 April 2017.

2. Alex Ball, Tijmen Jan Moser, Michael Pelissier, Alexander Mihai Popovici, Ioan Sturzu, Seismic Diffraction Imaging of Fluid Escape Features, South China Sea, Petex, ExCeL London, November 15-17, 2016.

3. Popovici A. M., Sturzu I., Moser, T. J., High Resolution Diffraction Imaging of Small Scale Fractures, AAPG/SEG International Conference and Exhibition, Barcelona 2016.

4. Popovici A. M., Sturzu I., Moser, T. J., High Resolution Diffraction Imaging of Small Scale Fractures in Shale and Carbonate Reservoirs, EAGE Workshop on Broadband Seismic: A Broader Picture for the Middle East, 16-17 November 2015, Abu Dhabi, UAE.

5. Popovici A. M., Sturzu I., Moser, T. J., Diffraction Imaging for obtaining high-resolution images of fractures, faults and other discontinuities, SEG International Exposition and Eighty-Fifth Annual Meeting, post-convention workshop W-17: De-Primary-Removing Negative Effects of Seismic Reflections, 23 October 2015.

6. Popovici A. M., Sturzu I., Moser, T. J., Tsingas C., High resolution diffraction imaging of small scale fractures in shale and carbonate reservoirs, 8th Congress of the Balkan Geophysical Society, Chania, Greece, 4-8 October 2015.

7. Popovici A. M., Sturzu I., Moser, T. J., High Resolution Diffraction Imaging of Small Scale Fractures in Shale and Carbonate Reservoirs, AAPG Forum: Reality-Based Reservoir Development, 23 September 2015, Oklahoma City, Oklahoma.

8. Popovici A. M., Sturzu I., Moser, T. J., High Resolution Diffraction Imaging of Small Scale Fractures in Shale and Carbonate Reservoirs, 14th International Congress of the Brazilian Geophysical Society, Rio de Janeiro, Brazil, August 3-6, 2015.

9. Popovici A. M., Sturzu I., Moser, T. J., High Resolution Diffraction Imaging of Small Scale Fractures in Shale and Carbonate Reservoirs, Unconventional Resources Technology Conference (URTEC), San Antonio, Texas, 1121-1129, 20-22 July 2015.

10. A.M. Popovici, I. Sturzu, T.J. Moser, C. Tsingas, High Resolution Diffraction Imaging of Small Scale Fractures in Shale and Carbonate Reservoirs, 8th Congress of the Balkan Geophysical Society, Chania, Greece, October 2015.

11. A.M. Popovici, I. Sturzu, T.J. Moser, High Resolution Diffraction Imaging of Small Scale Fractures in Shale and Carbonate Reservoirs, 14th International Congress of the Brazilian Geophysical Society, Rio de Janeiro, Brazil, 3-6 August 2015.

12. A.M. Popovici, I. Sturzu, T.J. Moser, High Resolution Diffraction Imaging of Small Scale Fractures in Shale and Carbonate Reservoirs, Unconventional Resources Technology Conference, San Antonio 2015.

13. Sturzu, A.M. Popovici, N. Tanushev, I. Musat, M.A. Pelissier and T.J. Moser, Specularity Gathers for Diffraction Imaging, 75th EAGE Conference & Exhibition 2013, London, England.

14. A.M. Popovici, N. Tanushev, I. Sturzu, I. Musat, C. Tsingas and S. Fomel, Fast Beam Migration Using Plane Wave Destructor (PWD) Beam Forming, 75th EAGE Conference & Exhibition 2013, London, England.

15. Alexander Mihai Popovici, Ioan Sturzu, Iulian Musat, Nick Tanushev, Tijmen Moser and Constantine Tsingas, High Resolution Diffraction Imaging of Small Scale Fractures Fields in Unconventional Shale Plays, 18th Middle East Oil & Gas Show and Conference (MEOS), Mar 10 - 13, 2013.

16. Alexander Mihai Popovici, Nick Tanushev, Ioan Sturzu, Iulian Musat, Constantine Tsingas and Sergey Fomel, Fast Beam Migration using Plane Wave Destructor (PWD) Beam Forming, 18th Middle East Oil & Gas Show and Conference (MEOS), Mar 10 - 13, 2013 2013.

17. A.M. Popovici, I. Sturzu, I. Musat, N. Tanushev and T.J. Moser, "High Resolution Diffraction Imaging of Small Scale Fractures in the Eagle Ford Unconventional Shale Play", December SIPES Luncheon, Society of Independent Professional Earth Scientists December 11, 2012, Houston, TX.

18. A.Padgett, G.Anduwan, M.Kuntzman, I.Sturzu, and M.Khatun, Modeling and Simulation of Fault Tolerant Quantum-dot Cellular Automata Devices, 2009 American Physical Society March Meeting, Pittsburgh, March 16-20, 2009.

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