CURRICULUM VITAE

Valery I. Levitas

Anson Marston Distinguished Professor in Engineering
Murray Harpole Chair in Engineering

Department of Aerospace Engineering; Department of Mechanical Engineering;
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Faculty Scientist, Ames National Laboratory, US Department of Energy,
Division of Materials Science & Engineering, Ames, Iowa 50011

Education / Theses

1995 Doctor-Engineer habilitation in Continuum Mechanics, University of Hannover, Germany.
Lecture Title: *Phase Transitions: Thermodynamic Theory, Analytical and Numerical Solutions, as Well as Interpretation of Experiments*

1988 Doctor of Sciences in Continuum Mechanics, Institute of Electronic Machine Building, Moscow, USSR.
Thesis Title: *Large Elastoplastic Deformation of Materials at High Pressure*

1981 Ph.D. in Materials Science and Engineering, Institute for Superhard Materials, Kiev, Ukraine, USSR.
Thesis Title: *Simulation of Materials Plastic Flow at High Pressure*

1978 M.S. (Honors) in Mechanical Engineering, Kiev Polytechnic Institute, Kiev, Ukraine, USSR.
Thesis Title: *Some Problems of Theory of Anisotropic Materials and their Application to Theory of Metal Forming*

Fluency in English, German, Russian, Ukrainian.

PUBLICATIONS

483 scientific papers, including 3 monographs, 11 book chapters, and 301 refereed journal papers, as well as 11 patents.
At ISU since 2008: 166 refereed journal papers, 2 book chapters, 11 conference proceedings, and 30 arXiv.org/SSRN preprints.

Google Scholar
427 scientific publications, 13,713 citations, H-factor: 68; I10-index: 215.
Since 2019: 6,724 citations, H-factor- 46; I10-index: 155.

Research Interests

- Material behavior under extreme conditions: high pressure and severe plastic deformations, solid-solid and solid-melt phase transformations, high strain and heating rates.
- *High pressure mechanochemistry:* experiments with rotational diamond anvils (x-ray diffraction with synchrotron radiation and Raman spectroscopy); large plastic deformations, strain-induced phase transformations, and microstructure evolution; search for new highly energetic materials; synthesis of superhard materials; theory and four-scale (from atomistic to macroscale) modeling.
- *Phase transformations:* temperature-, stress-, strain, and surface-induced; displacive (martensitic), diffusional-displacive, amorphization, melting, sublimation; small and large strains; energetic materials, shape memory alloys, steels, graphite-diamond, BN, SiC, Zr, Fe, Si, CeP, C_{60}, azides, geological materials; elastic and inelastic materials, continuum and dislocation approach; atomistic, nano-, micro-, meso-, and macroscales.
- *Virtual melting* as a new mechanism of crystal-crystal and crystal-amorphous phase transformations, surface-induced phase transformations, sublimation, high strain-rate plastic flow, and fracture.

- *Phase field approach* to various phase transformations, dislocations, twinning, cracks, surface-induced phenomena, interface science, interaction between phase transformations and dislocations and cracks, virtual melting, and cavitation; nano- and microscales.
- *Nanomechanics*: phase transformations; surface-induced phenomena; dislocations; voids; chemical reactions, diffusion, LiSi electrodes, combustion of nanoparticles.
- Strain-induced chemical reactions in energetic materials, mechanochemistry.
- *Large inelastic deformation of materials* (metals, rocks, multiphase materials with phase changes): multiscale modeling and experiment.
- Melt-dispersion mechanism of energetic reactions of aluminum nano- and micron particles and improvement of particle reactivity.
- Crystal lattice instabilities under general stress tensor: atomistic, continuum, and phase field approaches
- Continuum thermodynamics and kinetics.
- Computational mechanics.
- Micromechanics of multiphase materials.
- *Diamond synthesis:* modeling and optimization of a technological process; design optimization of high pressure apparatuses; development of a new technological process and industrial implementation.
- Ductile fracture, void nucleation; strength and durability of materials and structures.

Experience

July 2023 - present	Anson Marston Distinguished Professor in Engineering and Murray Harpole Chair in Engineering, Department of Aerospace Engineering and Department of Mechanical Engineering, Iowa State University, Ames, IA
August 2018 - June 2023	Anson Marston Distinguished Professor in Engineering, Vance Coffman Faculty Chair Professor in Aerospace Engineering, Department of Aerospace Engineering and Department of Mechanical Engineering, Iowa State University, Ames, IA
August 2017 - July 2023	Vance Coffman Faculty Chair Professor in Aerospace Engineering, Department of Aerospace Engineering and Department of Mechanical Engineering, Iowa State University, Ames, IA
August 2008 - August 2017	Schafer 2050 Challenge Professor, Department of Aerospace Engineering and Department of Mechanical Engineering; courtesy appointment, Department of Material Science and Engineering, Iowa State University, Ames, IA
November 2008 - present	Faculty Scientist, Ames National Laboratory, Division of Materials Science & Engineering, US DoE, Ames, IA
August 2008 - present	Adjunct Professor, Texas Tech University, Lubbock, TX Department of Mechanical Engineering
September 2002 - August 2008	Professor, Texas Tech University, Lubbock, TX Department of Mechanical Engineering

2002 - present	President, research and consulting firm "Material Modeling"
October 2002 - January 2007	Director, Center for Mechanochemistry and Synthesis of New Materials, Texas Tech University, Lubbock, TX
August 1999- August 2002	Associate Professor, Texas Tech University, Lubbock, TX Department of Mechanical Engineering
June 1995- August 1999	Research & Visiting Professor, University of Hannover, Department of Civil Engineering, Institute of Structural and Computational Mechanics, Hannover, Germany
April 1993- June 1995	Humboldt Research Fellow, University of Hannover, Department of Civil Engineering, Institute of Structural and Computational Mechanics, Hannover, Germany
February 1984- August 1994	Senior Researcher (1984-1988), Leading Researcher (1989-1994), Institute for Superhard Materials of the Ukrainian Academy of Sciences, Kiev, Ukraine;
1988-1992	Founder and director of private firm "Strength", Kiev, Ukraine; projects with diamond producing and steel industry
January 1982- August 1994	Leader of research group (5 - 12 researchers and 3 - 5 students), Institute for Superhard Materials of the Ukrainian Academy of Sciences, Kiev, Ukraine
April 1978- February 1984	Engineer (1978-1981), Junior Researcher (1981-1984), Institute for Superhard Materials of the Ukrainian Academy of Sciences, Kiev, Ukraine

Consultant

Los Alamos National Labs

Institute for Superhard Materials of the Ukrainian Academy of Sciences, Kiev, Ukraine

Gyeongsang National University, Jinju, South Korea

Seyeon E&S corporation, Daejeon, South Korea

Geophysical Laboratory, Carnegie Institution of Washington, Washington, DC

National Institute of Standards and Technology, Gaithersburg, MD

Licensed Professional Engineer in Texas (License # 88416)

Visiting Scholar/Professor

2014 Visiting Researcher, Geophysical Laboratory, Carnegie Institution of Washington, Washington, DC
2014 Visiting Researcher, National Institute of Standards and Technology, Gaithersburg, MD
2012 Visiting Scholar, University Erlangen-Nurnberg, Germany
2005 Visiting Scholar, Los Alamos National Labs, USA
1996- Visiting Scholar, University of California, San Diego, USA
1998 (06-07/96, 10-11/96, 05-07/97, 10-11/97, 06-08/98, 11/98)
1997 Visiting Scholar, University of Maryland, College Park, USA
1992 Visiting Professor, University of Hannover, Department of Civil Engineering, Institute of Structural and Computational Mechanics, Hannover, Germany
1985 Visiting Scholar, Institute of Problems of Mechanics of the USSR Academy of Sciences, Moscow, USSR

Teaching experience

2009- Lectures on engineering thermodynamics II, statics, and strength of materials, phase transformation in elastic materials (new grad. course, 4 times), nanomechanics of materials (new grad. course, 2 times), micromechanics of structural changes in materials (new grad. course, 3 times), phase field approach (new grad. course, 2 times), continuum mechanochemistry (new grad. course, 3 times), mechanics of interface and surface-induced phenomena (new grad. course, 2 times), phase transformations and plasticity (new graduate course, 2 times), and high pressure mechanics and phase transformations (new graduate course, 2 times) at the Iowa State University

1999-2008 Lectures on inelastic behavior of materials (new grad. course), statics (undergrad.), mechanics of materials (undergrad.), continuum mechanics (grad.), phase transformation in elastic materials (new grad. course), phase transformation in inelastic materials (new grad. course), and nonlinear mechanics of materials (new grad. course) at the Texas Tech University, Lubbock

1995-1999 Lectures on micromechanics of plasticity, phase transitions, theory of constitutive equations and theory of large inelastic deformations at the University of Hannover, Germany

2009- Supervision of 15 PhD students and 13 post-docs, member of Doctoral Committee for 12 other students at the Iowa State University.

2000-2008 Supervision of 4 PhD students, 7 MS and 2 BS students. Co-advised 2 PhD and 3 MS students. In addition, member of Doctoral Committee for 9 students and Master Thesis Committee for 11 students, Texas Tech University, Lubbock, TX

1981-1993 Supervision of PhD Theses of 10 students in Continuum Mechanics and Material Science in Machinery

1980-1992 Supervision of Senior Projects and Master's Theses for the $\simeq$ 35 students of the Kiev Polytechnic Institute and University of Kiev in *the theory of elasticity, plasticity, and numerical methods*

Short Courses

2011 Short course on phase transformations at CISM (International Centre for Mechanical Sciences) "Plasticity and Beyond: Microstructures, Crystal-Plasticity and Phase Transitions", Udine, Italy

1994 Short course on continuum thermomechanics and micromechanics at the University of Kassel, Germany

1993 Short course on continuum theory of phase transitions at the University of Leoben, Austria

PhD Students and Post Docs while at ISU, 2008-

Oleg Zarechnyy (former PhD student from Texas Tech, graduated in 2009), Post Doc, 2009-2013, currently Associate Teaching Professor in Aerospace Engineering Department at ISU; College of Engineerings Outstanding Achievement in Teaching Award (2024).

Topic: Modeling of mechanochemical processes in materials under compression and shear in rotational diamond anvil cell.

Joint papers: Computational Material Science (2014), J. Appl. Physics (2012, 2013 (two papers)), Phys. Review B (2010, two papers); High Pressure Research (2010); Europhysics Letters (2009); Applied Physics Letters (2007); J. Physical Chemistry B (2006).

Nataliya Altukhova (former PhD student from Texas Tech, graduated in 2010), Pre-doc, 2009-2010, Post Doc, 2010-2011, currently Associate Teaching Professor in Aerospace Engineering Department at ISU.

Topic: Modeling of void nucleation via sublimation, sublimation through virtual melting, and fracture.

Joint papers: Int. J. Plasticity (2012), Acta Materialia (2011); Phys. Review B (2009); Phys. Review Letters (2008).

Kamran Samani, PhD student, 2009 - Spring 2013, Post-Doc 2013-2014. Currently: Associate Professor of Instruction at University of Iowa.

Topic: Phase field approach to pre-melting and melting of nanoparticles.

Joint papers: Phys. Review B, Rapid Communication (2011); Nature Communications (2011), Phys. Review B (2014).

Awards: Second Award in the 2nd Excellence of Graduate Research Conference, ISU, Dept. of Mechanical Engineering, Ames, IA, 2010.
Iowa State University Research Excellence Award for Spring 2012.

Mahdi Javanbakht, PhD student, 2009 - Summer 2013, Post-Doc 2013-2014. Currently: Associate Professor in Department of Mechanical Engineering, Isfahan University of Technology, Isfahan, Iran.

Topic: Phase field approach to martensitic phase transformations, dislocations, and surface-induced phenomena.

Joint papers: Phys. Review Letters (2010, 2011); Nanoscale (2014, 2019); J. Mech. Phys. Solids (2015, 3 papers), International J. Plasticity (2018), Phys. Review B, Rapid Communication (2012); Appl. Phys. Lett. (2013); Phys. Review B (2016), International Journal of Solids and Structures (2016); Journal of Materials Science (2018); Materials Today (2015), Int. J. Materials Research (2011), International Journal of Engineering Sciences (2022), Acta Materialia (2023).

Awards: Second Award in the graduate student competition, 47th Annual Meeting Society of Engineering Science, Ames, IA, 2010.

Iowa State University Research Excellence Award for Spring 2012.

Karas Award for Outstanding Dissertation in the Mathematical and Physical Sciences, and Engineering discipline at Iowa State University, 2014.

Hamed Attariani, PhD student, 2009 - Summer 2014. Currently: Associate Professor at Wright State University.

Topic: Mechanochemical modeling of nanovoid formation in nanoparticles during chemical reactions and diffusion; mechanochemistry of Li-Si anode for Li-ion batteries.

Awards: Award from Aerospace Excellence Fund, ISU, Department of Aerospace Engineering, 2014; Iowa State University Research Excellence Award for Fall 2013. 2nd place in Excellence at Graduate Research Conference, ISU, Dept. of Mechanical Engineering, Ames, IA, 2011. 1st place in Excellence at Graduate Research Conference, ISU, Dept. of Mechanical Engineering, Ames, IA, 2010.

Joint papers: J. Physical Chemistry C (2012, two papers); Scientific Reports (2013), J. Mechanics and Physics of Solids (2014), Acta Materialia (2021).

Kasra Momeni, PhD student, 2011 - 2015, post doc at Penn State 2015, 2016-2020 Assistant Professor at Louisiana Tech, since summer 2020 Associate Professor at Department of Mechanical Engineering at University of Alabama. NSF Career Award 2019.

Topic: Phase field approach to virtual melting phenomena.

Awards: Iowa State University Teaching Excellence Award for Fall 2014; Research Award from Graduate and Professional Student Senate of ISU, Spring 2015; Teaching Award from Graduate and Professional Student Senate of ISU, 2015. Iowa State University Research Excellence Award for Summer 2015. 2016 Zaffarano Prize Honorable Mention for excellent graduate research at ISU.

Joint papers: Acta Materialia (2014), Phys. Review B (2014), Nano Letters (2015), Int. J. Solids and Structures (2015), Physical Chemistry Chemical Physics (2016), Carbon (2020).

Arunabha Mohan Roy, PhD student, 2011 - 2015, post doc 2015, currently post doc at Texas A&M University.

Topic: Phase field approach to multiphase and multivariant phase transformations and twinning.

Joint papers: Phys. Review B (2013, 2015), Acta Materialia (2016).

Award: travel grant for 52nd Annual Meeting Society of Engineering Science, College Station, TX.

Biao Feng, PhD student, 2011 - 2015, post doc 2015- 2016; post doc at Los Alamos National Laboratory (2016-2019); Lead Scientist at Kimberly-Clark Corporation (Atlanta, GA, 2019-2022); Senior Scientist at Space Relativity (Los Angeles, CA).

Topic: Modeling of mechanochemical processes in materials under compression and shear in rotational diamond anvil cell.

Awards: Iowa State University Research Excellence Award for Fall 2014; 2015 Alexander Lippisch Memorial Scholarship.

Joint papers: J. Appl. Physics (2013, three papers; 2014, 2016), Computational Material Science (2014), Int. J. Plasticity (2016, 2017, two papers; 2019); Materials Science and Engineering A (2017, two papers; 2018); Scientific Reports (2017); Physical Review Applied (2019), Carbon (2019), NPJ Computational Materials (2019).

Yong Seok Hwang, PhD student, 2012 - 2016; with support for four years of PhD study from the Agency for Defense Development, Republic of Korea ($195,552); currently at the Agency for Defense Development, South Korea.

Topic: Melt-dispersion mechanism of reaction of nano- and micron scale particles; laser-induced melting.

Joint papers: Appl. Physics Letters (2013, 2014), Physical Chemistry Chemical Physics (2015), J. Appl. Physics (2016); Physical Chemistry Chemical Physics (2016).

Award: gold certificate for best poster award at the Third International Symposium on Phase-field Method, State College, PA, 2014; Iowa State University Research Excellence Award for Fall 2015.

Dr. Anup Basak, post doc, 2015 - 2019; currently Assistant Professor at Indian Institute of Technology at Tirupati.

Topic: phase field modeling of multivariant martensitic phase transformations and surface-induced multiphase phase transformations.

Joint paper: Acta Materialia (2017, 2020), J. Mechanics and Physics of Solids (2018), Applied Physics Letters (2018), Computer Methods in Applied Mechanics and Engineering (2018), Computational Mechanics (2019), Mathematics and Mechanics of Solids (2020), Continuum Mechanics and Thermodynamics (2023).

Dr. Zhi He, visitor from Xi'an Shiyou University, China; supported by Chinese National Fund, 2014 - 2015.

Topic: phase field modeling of multicomponent solidification.

Hao Chen, joint PhD student with Dr. L. Xiong, Summer 2015 - December 2018; currently Professor in School of Mechanical Engineering, Jiangsu University, Zhenjiang, China.

Topic: molecular dynamics and multiscale modeling of phase transformations in silicon.

Joint papers: Phys. Rev. Letters (2017, 2018), Phys. Rev. B (2017), Computational Material Science (2019), Acta Materialia (2019, 2021), NPJ Computational Materials (2020), Nature Communications (2022).

Award: Iowa State University Research Excellence Award for Fall 2018.

Hamed Babaei, PhD student, Spring 2016 - Fall 2019; Post Doc 01/2020 - 12/2020; post doc at Texas A&M University (12/2020-11/2021), Senior R&D Engineer at Medtronic, Minneapolis, MN.

Topic: Nanoscale and microscale modeling of phase transformations and dislocations.

Joint paper: International Journal of Plasticity (2018), Computational Mechanics (2019), Acta Materialia (2019, 2023), Physical Review Letters (2020), Journal Mechanics and Physics of Solids (2020).

Award: Iowa State University Teaching Excellence Award for 2019.

Benhour Amirian, PhD student, Spring 2016 - Spring 2018, transferred to Canada due to family problems.

Topic: Modeling oxidation of aluminum particles in a broad heating rates range.

Ehsan Esfahani, PhD student, Spring 2016 - Spring 2020; currently staff R&D engineer at Western Digital, San Jose, CA.

Topic: Microscale modeling of phase transformations and plasticity.

Joint paper: International Journal of Solids and Structures (2018), Physical Review Letters (2018), Acta Materialia (2020).

Award: 2019 Alexander Lippisch Memorial Scholarship.

Mehdi Kamrani, PhD student, Spring 2016 - Spring 2020; Sr. CAE Engineer at Nikola Motor (Phoenix, AR, till summer 2021), Sr. Mechanical Engineer at Zebra Technologies (Holtsville, NY, till August 2022), currently Lead Engineer in modeling and simulation at Eaton (Los Angeles, CA).

Topic: Plastic flow and phase transformations under compression and torsion of materials in rotational diamond anvils.

Joint papers: Materials Science and Engineering A (2017, 2018), NPJ Computational Materials (2019), Science (2019).

Award: Iowa State University Research Excellence Award for Summer 2019.

Dr. Senlin Cui, post doc, Spring 2017 - Summer 2018, then post doc at Ames Lab, currently an Associate Professor in the School of Civil Aviation at Northwestern Polytechnical University, China.

Topic: Thermodynamic and kinetic modeling of precipitation in FeSi alloys.

Joint paper: J. Compounds and Alloys (2018).

Dr. Krishan Kumar Pandey, post doc, Spring 2018 - Spring 2020; currently Scientific Officer G at High Pressure & Synchrotron Radiation Physics Division, Bhabha Atomic Research Center, Mumbai 400 085, and Associate Professor, Homi Bhabha National Institute, Mumbai, India.

Topic: Experimental study of phase transformations and plasticity under compression and shear in rotational diamond anvil cell.

Joint papers: Acta Materialia (2020), Journal of Applied Physics (2021, 2024), Materials Research Letters (2023), Nature Communications (2023, 2024), Nature NPJ Computational Materials (2024).

Dr. Feng Lin, post doc, Summer 2020 -Summer 2023.

Topic: Experimental study of phase transformations and plasticity of metals under compression and shear in rotational diamond anvil cell and under compression with radial diffraction.

Joint paper: Materials Research Letters (2023), Nature Communications (2024).

Dr. Sorb Yesudhas, post doc, September 1, 2020 - .

Topic: Experimental study of phase transformations and plasticity of semiconductors and ceramics under compression and shear in rotational diamond anvil cell.

Joint paper: Materials Research Letters (2023), Nature Communications (2024).

Aniket Singh, PhD student, January 2022 - .

Topic: Two scale FEM modeling of plastic flow and phase transformations under compression and torsion of materials in rotational diamond anvils in connection to x-ray experiments.

Hossein Jafarzadeh, visiting PhD student, Spring 2017 - Spring 2018; researcher at Sharif University of Technology, Tehran, Iran (2018-2021); Alexander von Humboldt Fellow at the Ruhr University

at Bochum, Germany (2021-2023); currently: Assistant Professor at the Mechanical Engineering Department of the Isfahan University of Technology, Isfahan, Iran.

Topic: Phase field approach to fracture and interaction of fracture and phase transformations.

Joint papers: International J. Plasticity (2018), Nanoscale (2019), International Journal of Engineering Sciences (2022).

Achyut Dhar, PhD student, Fall 2019 - ; passed preliminary exam.

Topic: Macroscale modeling of plastic flow and strain-induced phase transformations in rotational diamond anvils.

Awards: Best oral presentation award at the International Conference on Recent Advances in High Pressure Science and Technology, Indira Gandhi Centre for Atomic Research, Kalpakkam, India, virtual conference, February 8-10, 2022; internship at the Argonne National Laboratory, Argonne, Il, supported by Argonne National Laboratory (September 13, 2022-January 12, 2023); Fellowship to attend the Computational Materials Science Summer School at Texas A&M University Campus in College Station, Texas from July 23 August 4, 2023; NSF Non-Academic Research Internships for Graduate student (INTERN) fellowship to perform research at Argonne National Laboratory, Argonne, Il (January 13-July 15, 2023); Internship fellowship at HPCAT (Sector 16), Argonne National Laboratory, APS, DOE DE-AC02-06CH11357 (July 24, 2023-December 20, 2024); Travel award for participation at 23rd Biennial Conference of the American Physical Societys (APS) Topical Group on Shock Compression of Condensed Matter (SCCM) and the SCCM Early Career and Student Symposium, June 18-23, 2023, Chicago, Il.

Joint paper: Nature Communications (2023), Nature NPJ Computational Materials (2024).

Saeed Hatefiardakani, PhD student, Fall 2019, returned back to Iran due to family reasons.

Topic: Theory and FEM simulations of plastic flow and strain-induced phase transformations in polycrystalline aggregate.

Raghunandan Pratoori, PhD student, Fall 2019 - 2024; currently postdoc at ISU.

Topic: Scale free modeling of phase transformations in single- and polycrystalline aggregates.

Joint paper: Acta Materialia (2023).

Awards: internship at the Argonne National Laboratory supported by Argonne National Laboratory (September 6, 2022-January 5, 2023); NSF Non-Academic Research Internships for Graduate student (INTERN) fellowship to perform research at Argonne National Laboratory, Argonne, Il (January 13 - July 15, 2023); Fellowship to attend the Computational Materials Science Summer School at Texas A&M University Campus in College Station, Texas from July 23 August 4, 2023; Internship fellowship at HPCAT (Sector 16), Argonne National Laboratory, APS, DOE DE-AC02-06CH11357 (July 24, 2023-January 31, 2024); Travel award for participation at 23rd Biennial Conference of the American Physical Societys (APS) Topical Group on Shock Compression of Condensed Matter (SCCM) and the SCCM Early Career and Student Symposium, June 18-23, 2023, Chicago, Il. ISU Graduate travel award to attend and present at Society of Engineering Science (SES) Annual Technical Meeting, Minneapolis, MN, October 8-11, 2023.

Dong-Wook Lee, MS and then PhD student at Texas Tech University, graduated Fall 2008; currently researcher in Masdar Institute of Science and Technology, UAE.

Topic: Phase field theory of martensitic phase transformation.

Joint papers: Physical Review B (2003), Europhysics Letters (2006, two papers), Physical Review Letters (2007), International J. Plasticity (2010).

Birce Dikici, PhD student, 2007 - 2010; co-advisor with Dr. Michelle Pantoya at Texas Tech University, currently Associate Professor at Embry-Riddle Aeronautical University, Daytona Beach, Fl.

Topic: Combustion and flame propagation studies with nanoaluminum.

Joint papers: Appl. Phys. Lett. (2008), Energy & Fuels (2009), Combustion & Flame (2010, 2011).

Joonyeoun Cho, PhD student, graduated Spring 2009; co-advisor with Dr. Alexander Idesman at Texas Tech University, currently Assistant Professor at Hanyang University in South Korea.

Topic: Finite element modeling of martensitic phase transformation.

Joint papers: J. Mech. & Phys. Solids (2005), Appl. Phys. Lett. (2008), Int. J. Solids & Struct. (2012).

Other Graduate Students at Texas Tech University, Lubbock, Texas

Istemi B. Ozsoy (PhD), currently Associate Professor at Embry-Riddle Aeronautical University.
Andrew Francis (MS), currently Excel Energy, Amarillo, TX.
Ramesh Chirumamilla (MS).
Ameeth Palakala (MS, co-advisor with Dr. A. Idesman).

PhD Students at the Institute for Superhard Materials of the Ukrainian Academy of Sciences, Kiev, Ukraine

Alexander Idesman (Texas Tech University, Professor)
Alexander Leschuk (Inst. for Superhard Materials, Kiev, Ukraine, Head of Department)
Sergey Polotnyak (Inst. for Superhard Materials, Kiev, Ukraine, Senior Researcher)
Sergey Shestakov (Inst. for Superhard Materials, Kiev, Ukraine, Senior Researcher)
Galina Dushinskaya (Kiev Technical University, Kiev, Ukraine)
Anatoliy Nemirovski (Ukraine, private company)
Igor Stashkevich (Ukraine, private company)
Oleg Dolinskiy (Canada, private company)
Anna Sapegina and Svetlana Karbovskaya (unknown).

Post Docs at the Institute for Superhard Materials of the Ukrainian Academy of Sciences, Kiev, Ukraine

Alexander Idesman (Texas Tech University, Professor)
Alexander Leschuk (Inst. for Superhard Materials, Kiev, Ukraine, Head of Department)
Sergey Polotnyak (Inst. for Superhard Materials, Kiev, Ukraine, Senior Researcher)
Sergey Shestakov (Inst. for Superhard Materials, Kiev, Ukraine, Senior Researcher)

Leonid Shvedov (Inst. for Superhard Materials, Kiev, Ukraine, Senior Researcher)

Supported undergraduate students at ISU

Sydney Kristine Stearns (2024), Michael Weber (2021-2023), Haley Schultz (2021), Ayman Karmi (2021-2022), Katelyn Moje (2020-2021), Connie Chang (2020), Chelsea Dalton (2019-2020), Andrew Townsend (2019-2020), Carlos Pierskalla (2019), Samuel Mason (2019), Zachary Latinen (2017-2018), Kirsten Lane (2017), Camden Woods (2017), Layne Droppers (2017), Emily Knoll (2014-2016), Anna Rohlfing (2016), Ian Norris (2015), Alexis Arrington (2014-2015), Anil Jairam (2015), Sarah Niles (2014-2015), Pablo Diaz (2014), Shehnaz Patel (2014), Ray Anaya (2013), Joe Moellers (2012-2013), Nathan Eisenbeis (2012).

Member

Board Member of the American Council of the International Association of Advanced Materials (IAAM), Sweden, named in 2024.

European Academy of Sciences and Arts, elected in 2023

Fellow of International Association of Advanced Materials (IAAM), Sweden, named in 2023.

EU Academy of Sciences, elected in 2022

AIRAPT (International Association for the Advancement of High Pressure Science and Technology) since 1987, *Executive Committee* 1993-1999

ASME (American Society of Mechanical Engineers) since 1996; **Fellow** since 2007

AGU (American Geophysical Union) since 2022

APS (American Physical Society) since 2003

EHPRG (European High Pressure Research Group) since 1987

Society of Engineering Science since 1995

TMS (Minerals, Metals and Materials Society) since 2005

EUROMECH (European Mechanics Society) since 2012

USACM (United States Association for Computational Mechanics) since 2021

GAMM (Society of Applied Mathematics & Mechanics) since 1992

Scientific GAMM Committee "Materials Theory" 1994-1999

Ukrainian National Committee of IUTAM 1993-1997

Awards and Honors

2024 ScholarGPS Highly Ranked Scholar in area of Phase Transitions: #5 lifetime and #12 prior 5 years.

2023 Elected to the European Academy of Sciences and Arts.

2023 Fellow of the International Association of Advanced Materials (IAAM), Sweden.

2023 Murray Harpole Chair in Engineering, Iowa State University, Ames, IA.

2022 Elected to the EU Academy of Sciences.

2022 Paper "Levitas V.I. High-Pressure Phase Transformations under Severe Plastic Deformation by Torsion in Rotational Anvils. Material Transactions, 2019, **60**, 1294-1301" is recognized as the most cited paper in Material Transactions during 2016-2023.

2021 Phase transformations and other structural changes in materials: special issue of the International Journal of Plasticity in Honor of Professor Valery I. Levitas; Editorial: Liming Xiong, International Journal of Plasticity, 2021, Vol. 139, 102948. https://www.sciencedirect.com/journal/international-journal-of-plasticity/special-issue/10TLR51Q4P6

2019 Symposium on Phase Transformations and other Structural Changes in Materials in honor of Khan's Medal Awardee Prof. Valery Levitas at 25^{th} International Conference on Plasticity, Damage & Fracture 2019, Panama, 1/3/19-1/9/19

2018 Anson Marston Distinguished Professor in Engineering, ISU, Ames, IA

2018 Khan International Award for outstanding contributions to the field of plasticity

2017 Vance Coffman Faculty Chair Professorship, Iowa State University, Ames, IA

2017 Symposium on Structural Changes in Materials in honor of Prof. Valery Levitas at 23^{rd} International Conference on Plasticity, Damage & Fracture 2017, Puerto Vallarta, Mexico, 1/3/17-1/9/17

2016 ISU Award for Outstanding Achievement in Research

2012 Alexander von Humboldt Foundation (Germany) Fellowship for alums for 3 months research in Germany, including support for post doc from the USA

06/11 Honorary Doctor in Materials of the Institute for Superhard Materials, Kiev, Ukraine

06/11 Medal "50 years of the Institute for Superhard Materials" for valuable contribution in the development of the synthesis of superhard materials, Kiev, Ukraine

2010 Lifetime Achievement Award for outstanding achievements in engineering, science, and education, International Biographical Centre, Cambridge, UK

2010 The Da Vinci Diamond for inspirational and outstanding achievements in engineering, science, and education, International Biographical Centre, Cambridge, UK

2009 Lifetime Achievement Award, World Congress of Arts, Sciences and Communications

2009 Einstein Award for Scientific Achievement in the area of mechanics and physics of materials, International Biographical Centre, Cambridge, UK

2008 Schafer 2050 Challenge Professorship, Iowa State University, Ames, IA

2007 ASME Fellow

2006 Essential Science Indicator: Emerging Research Fronts Paper in Mathematics in August 2006. A. Mielke, F. Theil, and V.I. Levitas. A variational formulation of rate-independent phase transformations using an extremum principle. Arch. Rational Mech. Anal., 162: 137-177, 2002.

2005 American Biographical Institute, Honorary Appointment at the Research Board of Advisors ("has been chosen for distinguished standing")

2005 Barnie E. Rushing Faculty Distinguished Research Award (Texas Tech University)

2005 Service Award (Texas Tech University)

2004 American Medal of Honor (American Biographical Institute)

12/01 Best Professor Award (Pi Tau Sigma, ME Department TTU, Fall 2001)

07/01	Medal "40 years of the Institute for Superhard Materials" for valuable contribution in the development of the synthesis of superhard materials, Kiev, Ukraine
04/98	Richard von Mises Award of GAMM (Society of Applied Mathematics & Mechanics)
10/95	International Journal of Engineering Sciences *Distinguished Paper Award*
1993 - 1995	Alexander von Humboldt Foundation Fellowship, Germany
04/85	Award for the best research work of young investigators conference "Superhard Materials and Composite"
08/84	Fellowship of the Academy of Sciences of USSR
01/84	Medal of the Ukrainian Academy of Sciences for the best research work of young investigators
05/82	Award of the Union of Scientific-Technical Societies of the USSR for the research work of young investigators
04/79	Award for the best research work of young investigators conference "Superhard Materials and Composite"
03/78	Award of the Ministry of High Education of the USSR for the best student research work in the natural sciences

Listed in

1999, 2000, 01, 10, 11, 12, 13, 14, 15, 16	Who's Who in the World, 16th, 17th, 18th, 27th, 28th, 29th, 30th, 31th, 32th and 33th Editions
2002, 03, 04, 10, 11, 12, 13, 14, 16	Who's Who in America, 56th, 57th, 58th, 64th - 70th Editions
2000, 01, 03, 05, 07, 09, 12, 14	Dictionary of International Biography, 29th - 37th Editions
2008	IBC Foremost Scientists of the World, International Biographical Centre, Cambridge, England
2008	Leading Scientists of the World, International Biographical Centre, Cambridge, England
2009	2000 Outstanding Scientists 2008/2009, International Biographical Centre, Cambridge, England
2008	Top 100 Scientists 2008, International Biographical Centre, Cambridge, England
2008	Asian-American Who's Who
2009	Asian-Pacific Who's Who
2007	Cambridge Blue Book, International Biographical Centre
2006	Marquis Who's Who
2005, 2006, 2007	Who's Who in American Education
2003, 2004	Great Minds of the 21st Century
2003, 2004	1000 Great Americans
2002, 03, 04, 14	2000 Outstanding Intellectuals of the 21st Century
2005, 06, 08, 11, 16, 17	Who's Who in Science and Engineering
1999	Lexington Who's Who, 5th Edition

Plenary, keynote, and invited lectures at symposia

- TMS 2025 Annual Meeting, Las Vegas, NE, March 23-27, 2025, invited lecture (invited).
- 61^{st} European High Pressure Research Group (EHPRG) Meeting, Thessaloniki, Greece, September, 1-6, 2024, plenary lecture.
- 2024 MATS Symposium and Workshop: Innovations for a Changing Environment, San Diego, USA, July 23-26, 2024, invited lecture.

- 28^{th} International Conference on Plasticity, Damage & Fracture, Panama City, Panama, January 3-9, 2024, distinguished keynote lecture.
- 23^{rd} Society of Engineering Science (SES) Annual Technical Meeting, Minneapolis, MN, October 8-11, 2023, keynote lecture.
- 55^{th} assembly of Advanced Materials Congress (AMC), Stockholm, Sweden, August 28 - 31, 2023, virtual invited Advanced Materials Lecture on occasion of becoming a Fellow of the International Association of Advanced Materials (IAAM).
- 23^{rd} Biennial Conference of the American Physical Societys (APS) Topical Group on Shock Compression of Condensed Matter (SCCM), June 18-23, 2023, Chicago, Il, invited lecture.
- 8^{th} International Conference on Nanostructured Materials by Severe Plastic Deformation (NanoSPD8), Bangalore, India, February 26 - March 3, 2023, opening plenary lecture.
- 27^{th} International Conference on Plasticity, Damage & Fracture, Dominican Republic, January 3-9, 2023, opening semi-plenary lecture.
- 66th DAE Solid State Physics Symposium, Ranchi, Jharkhand, India, December 18-22, 2022, plenary lecture (invited, declined due to time conflict).
- Society of Engineering Science (SES) Annual Technical Meeting, College Station, TX, October 16-19, 2022, keynote and invited lectures.
- 10th International Conference on Multiscale Materials Modeling (MMM10), Baltimore, Maryland, October 2-7, 2022, keynote lecture.
- 59th European High Pressure Research Group International Conference, virtual conference, Uppsala, Sweden, September 5-8, 2022, invited lecture.
- General conference of the Condensed Matter Division of the European Physical Society (CMD29), August 21-26, 2022, Manchester, UK, invited lecture.
- 11^{th} European Solid Mechanics Conference (ESMC), Galway, Ireland, July 4-8, 2022, keynote lecture.
- 19^{th} U.S. National Congress of Theoretical and Applied Mechanics, Austin, TX, 2022, June 19-24, keynote lecture.
- International Conference on Martensitic Transformations (ICOMAT 2022), Jeju Island, Korea, virtual conference, March 13 to 18, 2022, invited lecture and coauthor on another invited lecture.
- International Conference on Recent Advances in High Pressure Science and Technology, Indira Gandhi Centre for Atomic Research, Kalpakkam, India, virtual conference, February 8-10, 2022, plenary lecture and coauthor on two invited lectures.
- 10th Asian Conference on High Pressure Research (ACHPR-10), Korea, virtual conference, November 21-25, 2021, keynote lecture.
- 36th Technical Conference of the American Society for Composites (ASC), virtual conference, September 19-23, 2021, Texas A&M, invited talk.
- 16th U.S. National Congress on Computational Mechanics (USNCCM), virtual conference, July 25-29, 2021, keynote lecture.
- Virtual Technical Meeting of the Society of Engineering Science 2020, September 29-October 1, 2020, online, invited talk.
- 58th European High Pressure Research Group International Conference, Canary Island of Tenerife, September 6-11, 2020, invited lecture.

- TMS 2020 Annual Meeting, San Diego, CA, February 23-27, 2020, invited lecture.
- 26^{th} International Conference on Plasticity, Damage & Fracture, Rivera Maya, Mexico, January 3-9, 2020, keynote lecture.
- ASME International Mechanical Engineering Congress & Exposition, Salt Lake City, Utah, 2019, invited lecture.
- 56th Annual Meeting Society of Engineering Science, St. Louis, MO, 2019, invited talk.
- 27th International Conference on High Pressure Science and Technology (AIRAPT'27), August 4 to 9, 2019, Rio de Janeiro, Brazil, invited lecture.
- Fourth International Symposium on Phase-field Method, July 22-25, 2019, Bochum, Germany, keynote lecture.
- Plasticity'19 International Symposium, Panama City, Panama, January 3-9, 2019, keynote lecture.
- 10th European Solid Mechanics Conference, Bologna, July 2-6, 2018, invited talk.
- XIV International Conference on Nanostructured Materials (Nano 2018), City University of Hong Kong, invited lecture.
- CECAM workshop on "Phase Transformations and Plasticity in Crystals: Atomistic to Continuum Models", Milan, Italy, 2018, keynote lecture.
- 18^{th} U.S. National Congress of Theoretical and Applied Mechanics, Evanston, IL, 2018, keynote lecture.

- TMS 2018 Annual Meeting, Phoenix, AR, 2018, invited lecture.
- Plasticity'18 International Symposium, San Juan, Puerto Rico, USA, plenary lecture due to Khan International award.
- Materials Science & Technology (MS&T), Pittsburgh, Pennsylvania, 2017, invited lecture.
- International workshop on Giant Straining for Advanced Materials (GSAM2017), Fukuoka, Japan, 2017, keynote lecture.
- 15th International Conference of Advanced Materials (IUMRS-ICAM), Kyoto, Japan, 2017, invited lecture.
- 26th International Conference on High Pressure Science & Technology (AIRAPT'26) joint with 8th Asian Conference on High Pressure Research (ACHPR8) and 19th China High Pressure Conference (CHPC19), Beijing, China, 2017, invited lecture.
- 54th Annual Meeting Society of Engineering Science, jointly with ASME-AMD, Boston, Massachusetts, 2017 two invited talks.
- International Conference on Martensitic Transformations "Materials by Design", Chicago, IL, 2017, keynote lecture.
- Plasticity'17 International Symposium, Puerto Vallarta, Mexico, keynote lecture.
- 53th Annual Meeting Society of Engineering Science, College Park, MD, 2016, two invited lectures.
- 24th International Congress of Theoretical and Applied Mechanics (ICTAM 2016), August 20 to 26, 2016 in Montreal, Quebec, Canada, invited talk.
- International Conference on Emerging Trends in Applied Mathematics and Mechanics, Perpignan, France, 2016, keynote lecture.
- Plasticity'16 International Symposium, Kona, Hawaii, keynote lecture.

- Plasticity'15 International Symposium, Montego Bay, Jamaica, keynote lecture.
- ASME International Mechanical Engineering Congress, Montreal, Canada, 2014, invited lecture.
- 51th Annual Meeting Society of Engineering Science, Lafayette, IN, 2014, invited lecture.
- Third International Symposium on Phase-field Method, State College, PA, 2014, invited lecture.
- 11th World Congress on Computational Mechanics (WCCM XI), 2014, Barcelona, Spain, keynote lecture.
- International Conference on Martensitic Transformations, ICOMAT-2014, Bilbau, Spain, invited lecture.
- 17th U.S. National Congress on Theoretical & Applied Mechanics, USNCTAM-2014, E. Lansing, MI, keynote lecture.
- Materials in Extreme Environments, Army Science Planning & Strategy Meeting'14, Towson, MD, invited lecture.
- Plasticity'14 International Symposium, Freeport, Bahamas, keynote lecture.
- 50th Annual Meeting of Society of Engineering Science, Providence, RI, 2013, invited lecture.
- 37th International Conference and Exposition on Advanced Ceramics and Composites, Armor Ceramics Symposium, Daytona Beach, Florida, 2013, invited lecture.
- Plasticity'13 International Symposium, Nassau, Bahamas, keynote lecture.
- 22nd International Workshop on Computational Mechanics of Materials, Baltimore, MD, 2012, keynote lecture.
- EUROMECH 2012, Graz, Austria, 2012, keynote lecture.
- TMS 2012 Annual Meeting, Orlando, Florida, 2012, invited lecture.
- Plasticity'12 International Symposium (two Keynote Lectures, one of them is given by a co-author), San Juan, Puertico Rico, USA.
- 48th Annual Meeting Society of Engineering Science, Evanston, IL, 2011, keynote lecture.
- International Conference "High Pressure Effects on Materials," Kiev, Ukraine, 2011 (closing keynote lecture).
- ASME Applied Mechanics and Materials Conference, Chicago, IL, 2011, invited lecture.
- Plasticity'11 International Symposium, Puerto Vallarta, Mexico, keynote lecture.
- 47th Annual Meeting Society of Engineering Science, Ames, IA, 2010, , invited lecture.
- IV European Conference on Computational Mechanics, 2010, Paris, France, invited lecture.
- Army Workshop on Intelligent and Active Protective Systems for Dynamic Load Mitigation, Aberdeen, MD, 2010, invited lecture.
- Plasticity'10 International Symposium, St. Kitts Marriott Resort, West Indies, three Keynote Lectures, two of them are given by co-authors.
- International Conference and Advanced School "Turbulent Mixing and Beyond" (International Center for Theoretical Physics in Trieste, Italy, 2009), invited lecture;
- Plasticity'09 International Symposium (St. Thomas, US Virgin Islands), keynote lecture;
- 44th Annual Meeting of Society of Engineering Science, Champaign, IL, 2008 (two invited talks);
- Gordon Research Conference on Energetic Materials (Tilton, NH, 2008), invited lecture;

- International Conference on Martensitic Phase Transformations (ICOMAT'08, Santa Fe, NM), invited lecture;
- Plasticity'08 International Symposium (Big Island, Hawaii), keynote lecture;
- 7th International Symposium on Special Topics in Chemical Propulsion (Kyoto, Japan, 2007), plenary lecture;
- ASME Conference on Mechanics and Materials, Austin, TX (2007), invited lecture;
- TMS Annual Meeting (Orlando, Florida, 2007), invited lecture;
- Plasticity'06 International Symposium (Halifax, Canada, 2006), two keynote lectures;
- TMS Annual Meeting (San Antonio, Texas, 2006), invited lecture;
- 3rd NSF FRG Annual Workshop on High Pressure Phase Transformations, (Knoxville, TN, 2005), keynote lecture;
- Joint ASME, ASCE & SES Conference on Mechanics and Materials (Baton Rouge, Louisiana, 2005), invited lecture;
- Plasticity'05 International Symposium (Hawaii), two keynote lectures;
- NATO Advanced Research Workshop "Innovative Superhard Materials and Sustainable Coatings" 2004 (Kiev, Ukraine), keynote lecture;
- Plasticity'03 International Symposium (Quebec, Canada), keynote lecture;
- Plasticity'02 International Symposium (Aruba), keynote lecture;
- Superhard Tool Materials-2001 (Kiev, Ukraine), invited lecture;
- Plasticity'00 International Symposium (Whistler, Canada), keynote lecture;
- Fourth International Conference on Constitutive Laws for Engineering Material (Troy, NY, USA, 1999), keynote lecture;
- Plasticity'99 International Symposium (Cancun, 1999), keynote lecture;
- IUTAM Symposium on Thermoplasticity (Bochum, 1997), keynote lecture;
- 32nd Annual Meeting of Society of Engineering Science (New Orleans, 1995), keynote lecture;
- Conference on Phase Transformations (Kiev, 1990), keynote lecture.
- Conference on Large Elastoplastic Deformations (Kiev, 1984), keynote lecture.

Research grants

2024-2027 Army Research Office, cooperative agreement W911NF2420145 ($600,000) *Deformational, Transformational, and Microstructural Material Behavior of Selected Materials under High Pressure, Severe Plastic Deformations, and High Strain Rates.* PI: Levitas V.I.

2023-2026 NSF, DMR, Metals and Metallic Nanostructures, MMN-2246991 ($600,000) *New Rules for Coupled Severe Plastic Deformations, Phase Transformations, and Structural Changes in Metals under High Pressure.* PI: Levitas V.I.

2023 NSF Advanced Cyberinfrastructure Coordination Ecosystem: Services & Support (ACCESS), high-performance computational resources allocation MSS170015. *Plastic Strain Induced Phase Transformations under High Pressure: Multiscale Theory & Simulations in Search for and Synthesis of Novel Nanostructured Phases.* PI: Levitas V.I.

2022-2024 NSF, CMMI-1943710 ($110,000) *Plasticity, Phase Transformations, and their Interaction under High Pressure in Silicon,* two INTERN supplements for internship of my students A. Dhar and R. Pratoori at Argonne National Laboratory. PI: Levitas V.I.

2022 Extreme Science and Engineering Discovery Environment (XSEDE), high-performance computational resources allocation MSS170015 ($15,622). *Plastic Strain Induced Phase Transformations under High Pressure: Multiscale Theory and Simulations in Search for and Synthesis of Novel Nanostructured Phases.* PI: Levitas V.I.

2021-2023 Army Research Office, DURIP Grant W911NF2110313 ($134,010). *Materials Study under High Pressure, Strain Rates, and Large Deformations.* PI: Levitas V.I.

2021 Extreme Science and Engineering Discovery Environment (XSEDE), high-performance computational resources allocation MSS170015 ($1,320,000). *Plastic Strain Induced Phase Transformations under High Pressure: Multiscale Theory and Simulations in Search for and Synthesis of Novel Nanostructured Phases.* PI: Levitas V.I.

2020-2024 National Science Foundation, CMMI-1943710 ($516,000) *Plasticity, Phase Transformations, and their Interaction under High Pressure in Silicon.* PI: Levitas V.I.

2019-2022 National Science Foundation, DMR, Metals and Metallic Nanostructures, DMR-1904830 MMN ($450,001) *Deformation of Metals under High Pressure: Multiscale Stress Fields, Plasticity, and Phase Transformations.* PI: Levitas V.I.

2019-2020 Extreme Science and Engineering Discovery Environment (XSEDE), high-performance computational resources allocation MSS170015 ($62,012.59). *Plastic Strain Induced Phase Transformations under High Pressure: Multiscale Theory and Simulations in Search for and Synthesis of Novel Nanostructured Phases.* PI: Levitas V.I.

2019-2021 Office of Naval Research, N00014-19-1-2082 ($450,000) *Prestressing Metal Fuel Particles for Enhanced Reactivity.* PI: Pantoya M.L.; Co-PI: Levitas V.I. ($188,875)

2017-2020 Army Research Office, Grant W911NF-17-1-0225 ($450,000) *Phase transformation-related phenomena under compression and shear of ceramics.* PI: Levitas V.I.

2017-2019 Extreme Science and Engineering Discovery Environment (XSEDE), high-performance computational resources allocation MSS170015 ($87,066.33). *Plastic Strain Induced Phase Transformations under High Pressure: Multiscale Theory and Simulations in Search for and Synthesis of Novel Nanostructured Phases.* PI: Levitas V.I.

2017-2019 Army Research Office, DURIP Grant W911NF-17-1-0196 ($144,295) *High Pressure and Large Shear Deformation System for Materials Research.* PI: Levitas V.I.

2016-2018 Department of Energy, DE-EE0001384 $4,268,002 *Cost Effective 6.5% Silicon Steel Laminate for Electric Machines.* PI: J. Cui (ISU); Multi-Co-PI project lead by ISU in collaboration with Ames Laboratory, UTRC, and University of Delaware; Levitas V.I. was responsible for modeling (255,949)

2016-2018 Office of Naval Research, N00014-16-1-2079 ($450,000) *Optimization of Micron-Scale Aluminum Reactivity for Dynamic Loading.* PI: Pantoya M.L.; Co-PI: Levitas V.I. (50%-50%)

2015-2019 National Science Foundation, CMMI-1536925 ($432,231) *Interactions of Multiple Phase Transformations and Dislocations: Modeling and Simulation from Atomistic to Microscale.* PI: Xiong L. (ISU), Co-PI: Levitas V.I. ($224,116).

2014-2018 National Science Foundation, DMR-1434613 ($333,333) *DMREF/Collaborative Research: search for and synthesis of nanostructured superhard phases in bcn system under high pressure and shear: Multiscale Theory, Simulation, and Experiment.* PI: Levitas V.I.
In collaboration with Goddard W.A. (Caltech, $333,333) and Ma Y. (TTU, $333,333).

2013-2016 Defense Advanced Research Projects Agency, Grant W31P4Q-13-1-0010 ($1,000,082) *New Pathways toward Metastable Solids through Moderate Pressure and Large Plastic Shear: Multiscale Simulations and Experiments.* PI: Goddard W.A. (Caltech, $382,000), Co-PIs: Levitas V.I. ($350,000), Ma Y. (TTU, $350,000).

2012-2016 Army Research Office, Grant W911NF-12-1-0340 ($450,000) *Strain-Induced Phase Transformations in Ceramics under High Pressure.* PI: Levitas V.I. ($237,000), Co-PI: Ma Y.

2012-2015 Office of Naval Research, Grant N00014-12-1-0525 ($375,000) *Metal-hydrate Based Reactive Material Composites.* PI: Pantoya M.L.; Co-PI: Levitas V.I. (50%-50%)

2012-2016 Agency for Defense Development, Republic of Korea ($195,552), support for four years of PhD study for Mr. Yong Seok Hwang.

2012 Alexander von Humboldt Foundation (Germany) Fellowship for alumni for 3 months research in Germany at the University of Erlangen-Nuernberg, including support for my post doc from the ISU Dr. Oleg Zarechnyy.

2010-2014 National Science Foundation, CMMI-0969143 ($312,000 with REU supplement) *Virtual Melting and Amorphization as Mechanisms of Plastic Flow, Fracture, and Phase Transformations.* PI: Levitas V.I.

2011 Air Force SBIR Phase I, FA9300-11-M-2008 ($30,000) *Mechanism and Model-based Improvement of Energetic Nanoparticles.* PI: Levitas V.I.

2009-2012 Defense Threat Reduction Agency, HDTRA1-09-1-0034 ($450,000) *Search for New Highly Energetic Phases under Compression and Shear.* PI: Levitas V.I. ($225,000), Co-PI: Ma Y.

2011-2013 LANL contract, 104321 ($40,000) *Advanced Theory of Twinning.* PI: Levitas V.I.

2009 LANL contract 78832-001-09 ($15,000) *Modeling of quasi-melting.* PI: Levitas V.I.

2008-2012 Army Research Office, W911NF-09-1-0001 ($447,170) *Phase Transformations in Ceramics under Compression and Shear.* PI: Levitas V.I. ($223,585), Co-PI: Ma Y.

2008-2010 Office of Naval Research, Grant N00014-08-1-1262 ($134,958) *Fundamental Understanding and Improvement of Energetic Reactions of Aluminum Particles with Oxidizers and Metals.* PI: Levitas V.I.

2008-2012 Graduate Research Supplement for NSF grant CBET-0755236 ($120,967) *Melt Dispersion Mechanism for Energetic Reactions of Aluminum Nanoparticles.* PI: Levitas V.I., Co-PI Pantoya M.L.

2008-2012 National Science Foundation, CBET-0755236 ($300,000) *Melt Dispersion Mechanism for Energetic Reactions of Aluminum Nanoparticles.* PI: Levitas V.I. ($150,000), Co-PI Pantoya M.L.

2008 REU supplement for NSF Grant CMS-0555909 ($6,000) *Stress-Induced Virtual Melting as a New Mechanism of Solid-Solid Phase Transformations and Stress Relaxation.* PI: V. I. Levitas.

2008-2009 Office of Naval Research, Grant N000140810104 ($300,000) *Fundamental Understanding and Improvement of Energetic Reactions of Aluminum Particles with Oxidizers and Metals.* PI: Levitas V.I. ($180,000), Co-PI Pantoya M.L. Discontinued and reissued to Iowa State University

2008 College of Engineering Niche Research Area at TTU ($50,000 without overhead). *Energetic Materials.* PI: Levitas V.I. ($16,667), Co-PIs Pantoya M.L. and Weeks B.

2007 College of Engineering Niche Research Area at TTU ($28,000 without overhead). *Energetic Materials.* PI: Weeks B., Co-PIs Levitas V.I. ($10,000), Pantoya M.L.

2007 Office of Naval Research, Grant N000140710318 ($150,000) *Fundamental Understanding and Improvement of Energetic Reactions of Aluminum Particles with Oxidizers and Metals.* PI: Levitas V.I. ($90,000), Co-PI Pantoya M.L.

2006 LANL contract 31553-001-06 ($50,000) *Modeling Solid-Solid Phase Transformations and Chemical Reactions in Engineering Materials and Modeling Mechanism of Fast Reactions in Thermites.* PI: Levitas V.I.

2006-2008 NSF Grant CMS-0555909 ($120,000) *Stress-Induced Virtual Melting as a New Mechanism of Solid-Solid Phase Transformations and Stress Relaxation.* PI: V. I. Levitas.

2005 Travel grant from A. von Humboldt Foundation ($2,100)

2004-2006 LANL contract 13720 ($135,300) *Modeling Solid-Solid Phase Transformations and Chemical Reactions in Engineering Materials.* PI: Levitas V.I.

2005 LANL contract ($49,500) *Phase Field Theory of Martensitic Phase Transformations.* PI: Levitas V.I.

2004-2005 Western Michigan University ($16,000) *In situ X-ray diffraction and Raman studies and modeling of silicon carbide under pressure, up to 40 GPa, and shear in a rotational diamond anvil cell.* PI: Levitas V.I., Co-PI Ma Y.

2005 Student support from College of Engineering ($6,750).

2003-2004 Four travel grants from NATO, LANL and National Committee for Theoretical and Applied Mechanics ($6,500).

2004 NSF Grant ($380,000). *Major Research Instrumentation: Scanning Electron Microscope.* Senior Personnel within TTU team.

2002 – 2005 NSF Grant CMS-0201108 (3 years, $180,000) *Continuum Mechanical and Micromechanical Fundamentals of Mechanochemistry of Energetic Materials.* PI: Levitas V.I.

2002-2003 LANL contract 52844 ($183,812) *Landau-Ginzburg theory and modeling for stress-induced martensitic phase transformation at large strains.* PI: Levitas V.I.

2001 Student support from College of Engineering ($15,000).

2001 LANL contract 8060 (0.5 year, $44,135) *New Landau-Ginzburg type approach for stress-induced martensitic phase transformation.* PI: Levitas V.I.

2001 - 2003 Excellence Funding in Mechanics and Materials (2 years, $250,000 without overhead). PIs: T. D. Burton (Head of Department), V.I. Levitas

2001 - 2003 U.S. Department of State, Science and Technology Center in Ukraine (3 years, $159,000 without overhead): *Determination of the Effect of Shear Strains on the PT in Materials at Ultra-High Pressures and High Temperatures.* PI: Shvedov, L. N., Co-PI from TTU: Levitas, V. I.

1998 - 1999 German Research Society (2 years, 260,000 DM without overhead, with possibility to continue for two more years):
Theory and Numerical Methods for Averaging for Thermoelastoplastic, Microheterogeneous Materials with Phase Transformations with Applications for Heat Treatment of Metal Components. PIs: Stein, E. and Levitas, V. I.

1998 2 Visiting Grants from the University of California, San Diego, Northwestern University and Los Alamos National Laboratory.

1996-1997 4 Visiting Grants from the Institute for Mechanics and Materials, University of California, San Diego.

1995 – 1999 Volkswagen Foundation, Germany, grant for basic multidisciplinary research at the intersection of three different sciences (3.5 years);
Stress- and Strain-Induced Phase Transformations in Engineering Materials. New Concepts and Solutions for Microstructural Experiments, Modeling, Analysis and Computations from Point of View Of Material Science, Continuum Thermodynamics and Mathematics. PIs: Prof. E. Stein and V. I. Levitas. In collaboration with Institute for Material Science, Ruhr-University Bochum (Prof. E. Hornbogen, Mr. J. Spielfeld) and Institute of Applied Mathematics, University of Hannover (Prof. A. Mielke, Dr. M. Kuczma, Dr. F. Theil)

Total amount 1,650,200 DM (without overhead); Part of the Institute of Structural and Computational Mechanics, University of Hannover 904.500 DM.

1993 – 1995 Alexander von Humboldt Foundation Fellowship, Germany (2 years).

1992 German Research Society, visiting grant (4 months).

1994 – 1996 Ukrainian Academy of Sciences. Research project 1145: *Investigation of Mechanical Properties and Phase Transformations of Materials in Diamond Anvils Under Compression and Shear.* PIs: Novikov, N. V. and Levitas, V. I. Institute for Superhard Materials. *Full year support for 3 researchers.*

1994 – 1996 State Scientific-Technical Program "New Materials". Research project 9.03.05/142-94: *Design and Investigation of a High Pressure Apparatus with Steel Matrix for the Synthesis of Large Monocrystalline Diamonds.* PIs: Novikov, N. V. and Levitas, V. I. Institute for Superhard Materials. *Full year support for 3 researchers.*

1992 – 1994 State Scientific-Technical Program "New Materials". Research project 7.04.02/080-92: *Development of a Thermomechanical Model for the Description of the Process of Diamond Crystallization in a Metal-Carbon Solution System.* PIs: Novikov, N. V. and Levitas, V. I. Institute for Superhard Materials. *Full year support for 4 researchers.*

1992 – 1994 Ukrainian Academy of Sciences. Research project 1138: *Development of an Improved Model for the Description of the Process of Diamond Crystals Synthesis in High Pressure Apparatus.* PIs: Novikov, N. V. and Levitas, V. I. Institute for Superhard Materials. *Full year support for 3 researchers.*

1992 – 1994 Ukrainian Academy of Sciences. Research project 1146: *Computer Design of the Components of High Pressure Apparatus for Superhard Materials Synthesis.* PIs: Novikov, N. V. and Levitas, V. I. Institute for Superhard Materials. *Full year support for 3 researchers.*

1990 – 1992 Ukrainian Academy of Sciences. Research project 1131: *Development of a Mathematical Model of Stressed-Strained State of Structurally Heterogeneous Materials under Large Irreversible Deformations, High Pressure and Phase Transitions.* PIs: Novikov, N. V. and Levitas, V. I. Institute for Superhard Materials. *Full year support for 5 researchers.*

1989 – 1991 Ukrainian Academy of Sciences. Research project 0734: *Investigation of the Mechanical State and Development of the Force Components of an Apparatus, Working at Megabar Pressure.* PI of subproject: Levitas, V. I. Institute for Superhard Materials. *Full year support for 5 researchers.*

1990 – 1991 Institute's for Superhard Materials Diamond Plant. Technical project 3031: *Optimization of the Value of Axial Interference for the New Method of Press-Fitting with the Aim of Increasing of the Durability of a Block-Matrix for Diamond Synthesis on 15%*. PI: Levitas, V. I. Institute for Superhard Materials. *Full year support for 5 researchers.*

1990 – 1991 Minsk Steel Research Institute. Research project 0037: *Development of Thermomechanical Models for the Heat Treatment and Carburizing of Steel.* PI: Levitas, V. I. Kiev, Firm "Strength". *Full year support for 2 researchers.*

1987 – 1989 Ukrainian Academy of Sciences. Research project 0170: *Development and Organization of the Production of a High Pressure Apparatus Of the Cylindrical Type for the Synthesis of Monocrystalline Diamonds with a Volume Exceeding 25 sm*^{3}. PI of subproject: Levitas, V. I. Institute for Superhard Materials. *Full year support for 3 researchers.*

1987 – 1989 Ukrainian Academy of Sciences. Research project 0169: *Development and Organization of the Production of a High Pressure Apparatus with Reaction Volume 30-40 sm*^{3} *for Synthesis of Heat Resistant Monocrystalline Diamonds and Other Superhard Materials.* PI of subproject: Levitas, V. I. Institute for Superhard Materials. *Full year support for 3 researchers.*

1988 – 1989 Poltava Diamond Plant. Technical project 2717: *Development and Industrial Installation of the Technological Process of Press-Fitting of Cemented Carbide Matrix of High Pressure Apparatus with the Aim of Increasing Durability by 25 % at Diamond Synthesis.* PI: Levitas, V. I. Kiev, Firm "Strength". *Full year support for 6 researchers.*

1987 – 1988 Kiev Research Institute "VNIPROMMASH". Technical project 2264: *Increasing of the Screening Effect of Thin Aluminum Vacuum Condensates on a Organic Film Backing by Producing of Finite Strains under Hydrostatic Pressure 0.1-10 Kbar.* PI: Levitas, V. I. Institute for Superhard Materials. *Full year support for 2 researchers.*

1987 – 1988 Poltava Diamond Plant. Technical project 2508: *Development and Industrial Testing of Technology of Press-Fitting of Cemented Carbide Matrix of High Pressure Apparatus with the Aim of Increasing their Durability.* PI: Levitas, V. I. Institute for Superhard Materials. *Full year support for 6 researchers.*

1987 – 1988 Institute for Superhard Materials Diamond Plant. Technical project 2451: *Development of Methods of Quality Control of Container of High Pressure Apparatuses Made from Steel.* PI: Levitas, V. I. Institute for Superhard Materials. *Full year support for 4 researchers.*

1986 – 1988 Ukrainian Academy of Sciences. Research project 0168: *Large Elastoplastic Deformations of Materials Under High Pressure.* PIs: Novikov N.V. and Levitas, V. I. Institute for Superhard Materials. *Full year support for 9 researchers.*

1986 – 1987 Moscow Research Institute "CryogenMach". Technical project 2384: *Development of Mathematical Models of Behavior of Materials, Used in the Structures of Cryogenic Machine Building.* PI: Levitas, V. I. Institute for Superhard Materials. *Full year support for 3 researchers.*

1985 USSR Academy of Sciences, visiting grant for the research at the Institute of Problems of Mechanics of the USSR Academy of Sciences, Moscow (4 months).

1984 – 1986 Ukrainian Academy of Sciences. Research project 0162: *Investigation of Peculiarities of Control of Thermodynamical Parameters at Diamond Single Crystals Synthesis.* PI of subproject: Levitas, V. I. Institute for Superhard Materials. *Full year support for 9 researchers.*

1982 – 1984 Ukrainian Academy of Sciences. Research project 0158: *Development and Installation of the System of Research Automatization in the Fields of Development of New Technologies and Tool Design at the Institute for Superhard Materials.* PI of subproject: Levitas, V. I. Institute for Superhard Materials. *Full year support for 7 researchers.*

1981 – 1982 Poltava Diamond Plant. Technical project 1707: *Determination of Mechanical Properties of Materials, Used in High Pressure Apparatuses; Calculations of Strength of Apparatuses.* PI of subproject: Levitas, V. I. Institute for Superhard Materials. *Full year support for 2 researchers.*

1981 – 1982 Ukrainian Academy of Sciences. Research project 1117: *Investigation of Physical and Mechanical Properties of Superhard Materials and Development of the Methods of their Testing in the Industrial Conditions.* PI of subproject: Levitas, V. I. Institute for Superhard Materials. *Full year support for 2 researchers.*

Synergistic Activities. Service

Scientific (Organizing) Committees

Fifth International Symposium on Phase-field Modelling in Materials Science, Hangzhou, China (2024); XVI International Conference on Computational Plasticity - COMPLAS 2021, 2023, and 2025, Barcelona, Spain; Fourth International Symposium on Phase-field Method, Bochum, Germany (2019); International Conference on Martensitic Transformations "Materials by Design", Chicago, IL (2017); Third International Symposium on Phase-field Method, State College, PA (2014); Annual Meeting of the Society of Engineering Sciences (2010); International Conference on Martensitic Phase Transformations (ICOMAT'08); AIRAPT High Pressure International Conference (1987, 1995, 1997, 1999); XXVIII EHPRG High Pressure Annual Meeting (1989); International Symposium on Plasticity (1999, 2000, 2002, 2003, 2005, 2006, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2018, 2019, 2020, 2023, 2024); High Pressure'00; Superhard Tool Material-2001; High Pressure'04

Organizer and Chairman of the Regular Seminar
at the Institute for Superhard Materials, Kiev

04/89 - 11/92 "Nonlinear Problems of Continuum Thermomechanics and Physical Material Science"

Editorial work

2021-2022	Guest-Editor for the Special Issue of the Continuum Mechanics and Thermodynamics in honor of Prof. V.A. Levin
07/15 - Present	Scientific Reports (Nature Publishing Group), Editorial Board
01/09 - Present	International Journal of Plasticity, Editorial Advisory Board
01/90 - Present	Journal for Superhard Materials (Kyiv, Ukraine); International Editorial Board
01/12 -01/16	Journal of Mechanical Engineering, Bulletin of the National Technical University of Ukraine; International Editorial Board
01/16 - Present	Mechanics and Advanced Technologies, Journal of the National Technical University of Ukraine; International Editorial Board
2013	Guest-Editor for the Special Issue of the Journal of Engineering Mathematics, 2013, Vol. 78, Issue 1 in honor of A. A. Ilyushin
2001 - 2005	Journal of Engineering Mechanics, American Society for Civil Engineers, Member of the Computational Mechanics Committee
2000	Guest-Editor of special issue of International J. Plasticity, 2000, Vol. 16, No. 7-8
2002	Guest-Editor of special issue of International J. Plasticity, 2002, Vol. 18, No 11.
02/96 - 02/05	"High Pressure Physics And Technology", Board of Editors
01/83 - 12/89	Review Journal "Mechanica", reviewer

Member of the selection committee for the Khan International Award for outstanding contributions to the field of plasticity (as a recipient of the Khan International Award 2018), 2018- 2023; Chair of the committee in 2023.

High Pressure Collaborative Access Team Beamline Review Team with Argonne National Laboratory, 2022.

Reviewer for (approx. 40-50 reviews per year):

- Nature Materials;
- Nature Physics;
- Reports on Progress in Physics
- Materials Today;
- Nature Communications;
- Advanced Materials;
- Advanced Engineering Materials;
- Advanced Science;
- Nano Letters;
- Nanotechnology;
- International Journal of Plasticity;
- Acta Materialia;
- Journal of the Mechanics and Physics of Solids;
- Physical Review Letters;
- Physical Review B;
- Physical Review E;
- Physical Review X;
- Physical Review Applied;
- Physical Review Materials;
- Progress in Material Science;

- Communications Materials;
- Computer Methods in Applied Mechanics and Engineering;
- Nanoscale;
- Materials Today Communications;
- AIP Advances
- International Journal of Hydrogen Energy;
- Energy;
- Combustion and Flame;
- Combustion Science and Technology;
- Combustion Theory and Modeling;
- Nanoscale Research Letters;
- Journal of Physical Chemistry;
- Engineering Fracture Mechanics;
- Diamond and Related Materials;
- Journal of Nanoscience and Nanotechnology;
- Rare Metals;
- Journal of Applied Mechanics;
- Materialia;
- Europhysics Letters; Metallurgical and Materials Transactions A
- NPJ Computational Materials;
- Acta Biomaterialia;
- ACS Applied Electronic Materials
- Materials Research Letters;
- Material Research Bulletin;
- Journal of Alloys and Compounds;
- Advanced Engineering Materials;
- Materials;
- International Journal of Engineering Sciences;
- Theoretical and Applied Fracture Mechanics;
- International Journal of Solids and Structures;
- International Journal of Mechanical Sciences;
- The European Physical Journal B;
- Chemistry of Materials;
- European Journal of Mechanics - A/Solids;
- Material Science and Engineering A;
- Material Science and Engineering R;
- CMC: Computers, Materials, & Continua;
- Acta Mechanica;
- Acta Thermochimica;
- Journal of Physics and Chemistry of Solids;
- Philosophical Magazine Letters;
- Results in Physics;
- Langmuir;
- ACS Applied Materials & Interfaces;

- Inorganic Chemistry;
- Chemical Physics Letters – Outstanding Reviewer Status;
- Journal of Chemical Physics
- Computers Physics Communications;
- International Journal of Thermophysics
- Reaction Chemistry and Engineering
- Materials Chemistry and Physics;
- ACS Applied Energy Materials
- Energy Advances
- MDPI Materials
- Rare Metals
- International Journal of Energetic Materials and Chemical Propulsion;
- Journal of the American Ceramic Society
- Journal of Propulsion and Power;
- Mechanics of Materials;
- Journal de Physique;
- Material Characterization;
- Journal of The Electrochemical Society;
- Journal of Intelligent Material System and Structures;
- Scripta Materialia;
- Computational Mechanics;
- Journal of Computational Physics;
- Intermetallics;
- Physica B;
- IMA Journal of Applied Mathematics;
- Journal of Materials Engineering and Performance;
- ChemPhysChem;
- Communications in Nonlinear Science and Numerical Simulation;
- Modelling and Simulation in Materials Science and Engineering;
- Journal of Computational Material Science;
- Mechanics Research Communication;
- Metals and Materials International;
- Journal of Materials Science;
- Journal of Materials Chemistry A;
- Journal of Engineering Mathematics;
- Journal of Materials Research and Technology;
- Communications in Numerical Methods in Engineering
- High Pressure Research;
- Solid State Communications
- AIMS Materials Science;
- Proceedings of the Institution of Mechanical Engineers, Part N: Journal of Nanomaterials, Nanoengineering and Nanosystems;
- Modern Applied Science
- Advanced Powder Technology

- Applied Mathematics and Physics
- Meccanica;
- Strength of Materials;
- Superhard Materials;
- High Pressure Physics and Technology;
- International Journal of Abrasive Technology
- ZAMM; Material Science Research India
- American Institute of Physics;
- National Science Foundation
- Department of Energy
- Army Research Office
- Petroleum Research Fund;
- Springer
- German Research Foundation
- National Science Centre, Poland
- Kluwer Academic/Plenum Publishers;
- Cambridge University Press
- Panelist to NSF panel 'Mechanics and Materials', 01/00, 02/12, 12/15, and 8/21;
- Stanford Synchrotron Radiation Light source;
- Science and Technology Center in Ukraine (supported by U.S. Department of State);
- Hungarian Science Foundation;
- Natural Sciences and Engineering Research Council of Canada.

Conference and Session Organizer

1/24 Symposium "Material Transformations and Plasticity" at International Conf. on Plasticity, Damage & Fracture 2024 (Panama City, Panama), together with Drs. Dmitry Popov and Nenad Velisavljevic.

1/23 Symposium "Material Transformations and Plasticity" at International Conf. on Plasticity, Damage & Fracture 2023 (Punta Cana, Dominican Republic), together with Drs. Dmitry Popov and Nenad Velisavljevic.

1/20 Symposium "Phase Transformations, Dislocations, and Other Structural Changes in Materials with Microstructure Complexities" at Plasticity'20 International Conference (Rivera Maya, Mexico), together with Dr. L. Xiong.

7/18 Minisymposium "Phase Transformations, Dislocations, and Interface Mechanics" at the 13th World Congress on Computational Mechanics (New York City), together with Dr. L. Xiong.

1/18 Symposium on Phase Transformations, Dislocations, and Interface Mechanics at Plasticity'18 International Conference (San Juan, Puerto Rico, USA), together with Dr. L. Xiong.

7/17 Symposium "Interactions of Phase Transformations and Plasticity" at International Conference on Martensitic Transformations "Materials by Design", Chicago, IL.

6/17 Sessions "Phase and chemically transforming materials" at 5th International Conference on Material Modelling, Rome, Italy, together with Dr. A. Freidin

1/16 Symposium on phase transformations at Plasticity'16 International Conference (Big Island, Hawaii), together with Dr. L. Xiong.

1/15 Symposium on diffusive and displacive deformation and transformation processes versus plasticity at Plasticity'15 International Conference (Montego Bay, Jamaica), together with Dr. T. Antretter.

10/14 Symposium on Coupling Plasticity and Phase Transformations at Annual Meeting of the Society of Engineering Sciences (West Lafayette, IN), together with Drs. I. Beyerlein and A. Hunter.

1/14 Symposium on Phase Transformations and Other Structural Changes at Plasticity'14 International Conference (Freeport, Bahamas)

1/13 Symposium on Structural changes in materials and phase field approach at Plasticity'13 International Conference (Nassau, Bahamas)

1/12 Symposium on Mechanics and Physics of Structural Changes in Materials at Plasticity'12 International Conference (San Juan, Puerto Rico, USA)

1/11 Symposium on phase transformations and mechanochemistry at Plasticity'11 International Conference (Puerto Vallarta, Mexico)

10/10 Track Chair for Mechanics of Materials and Structures at Annual Meeting of the Society of Engineering Sciences (Ames, IA)

10/10 Symposium on phase transformations and mechanochemistry at Annual Meeting of the Society of Engineering Sciences (Ames, IA)

01/10 Symposium on phase transformations at Plasticity'10 International Conference (St. Kitts Marriott Resort, West Indies)

01/09 Symposium on phase transformations as mechanism of plasticity at Plasticity'09 International Conference (St. Thomas, US Virgin Islands), together with Dr. D. Lagoudas

01/08 Symposium on mechanics and physics of phase transformations at Plasticity'08 International Conference (Kona, Hawaii), together with Dr. A. Saxena

06/07 Symposium on phase transformations and mechanochemistry at McMat 2007: ASME Applied Mechanics and Materials Conference (Austin, TX), together with Dr. M. A. Grinfeld

06/06 Symposium on phase transformations at Plasticity'06 International Conference (Halifax, Canada), together with Dr. D. Preston

06/05 Symposium on phase transformations at Joint ASME, ASCE and SES Conference on Mechanics and Materials (Baton Rouge, Louisiana), together with Dr. D. Preston

01/05 Symposium "Phase Transformations: Across Scales and Disciplines", at Plasticity'05 International Conference, Kauai (Hawaii), together with Dr. T. Lookman

07/03 Symposium on phase transformations at Plasticity'03, Quebec, Canada

06/02 Symposium "Constitutive Modeling of Shape Memory Alloys" at US National Congress of Theoretical and Applied Mechanics, Blacksburg, USA, with Prof. D. Lagoudas

10/02 Symposium "Mechanics and Physics of Solid-Solid Phase Transformations" at SES'02 Meeting, Penn State, USA, with Profs. D. Lagoudas and I. Karaman

01/02 Symposium "Phase Transitions and Plasticity" at "Plasticity'02" International Conference, Aruba, together with Prof. F.D. Fischer

07/00 Symposium "Physics and Mechanics of Phase Transformations" at "Plasticity'00" International Conference, Whistler, Canada, together with Dr. D. Preston

10/99 Symposium "Phase Transformations and Shape Memory Alloys" at SES'99 Meeting, Austin, USA, together with Prof. D. Lagoudas

05/99 Minisymposium "Phase Transitions in Plastic Materials" at GAMM Annual Meeting, Metz, France, together with Prof. F.D. Fischer and E. Stein

01/99 Symposium "Martensitic Phase Transitions in Inelastic Materials" at "Plasticity'99" International Conference, Cancun, Mexico, together with Prof. E. Stein

09/98 International Seminar "Martensitic Phase Transitions: Aspects of Material Science, Continuum Mechanics and Applied Mathematics", together with Prof. E. Stein, E. Hornbogen and A. Mielke, Hannover, Germany

04/90 Conference "Continuum Thermomechanical Methods in the Theory of Phase Transitions", together with Prof. N. Novikov, Kiev, Ukraine

10/89 Conference "Contact Problems and Friction", together with Prof. B. Efimow and N. Novikov, Kiev

07/85 Conference "Large Elastoplastic Deformations - Theory, Experiments, Numerical Methods and Technical Applications", together with Prof. N. Novikov, Kiev, Ukraine

Service at Iowa State University
University Level

- Review of Sri Sritharan activity for renewal for the Wilkinson Chair in the College of Engineering (2021)
- James and Katherine Melsa Dean of the College of Engineering Search Committee, member (2018-2019)
- CNDE Director Search Committee, member (2011-2012)
- IPRT review team, member (2010)

College of Engineering Level

- Aerospace Engineering Chair Search Committee, member (2019-2020)
- Aerospace Engineering Chair Search Committee, member (2018-2019)
- Strategic Plan Implementation Ad-Hoc Advisory Committee for Advanced Material and Manufacturing, member (2018-present)
- Review of the Aerospace Department Chair Committee (2014)
- CoE Bailey Award Committee, member (2011)
- ME Chair Search Committee, member, ME Department (2009-2010)

Departmental Level

- NTE Faculty Renewal Review Committee (2023)
- Award Committee, member (2023, 2024)
- Search Committee in Mechanics of Materials and Structures, Department of Aerospace Engineering, member (2022)
- Steven Holland promotion committee, member (2021)
- Liming Xiong's tenure and promotion committee, Chair (2019)
- Nataliya Altukhova promotion committee, member (2018-2019)
- Peng Wei and Benjamin Ahn the 3rd year review committee, Chair (2017-2018)
- Liming Xiong's third year review committee, Chair (2016)
- Chair of Search Committee in Mechanics of Composite Materials and Structures, Department of Aerospace Engineering (2013-2014)
- Engineering Mechanics graduate program committee, member, AERO Department (2008-2012)
- Graduate program committee, member, AERO Department (2010-2012)
- Post tenure committee for Rajagopalan, Sturges and Lu, member, AERO Department (2012)
- Post tenure committee for Molian, member, ME Department (2012)
- Graduate program committee, member, ME Department (2009, 2010)
- ME 231/332 Course development committee, member (2009, 2010)
- EM 274 - Statics textbook review committee, member (2009, 2010)
- Terry Meyer's third year review committee, Chair (2010)
- Mike Olson' promotion committee, member (2010)
- Wei Hong's T&P committee, Chair (2009)
- Steve Holland's T&P committee, member (2009)
- Undergraduate education committee, ME Department, member (2008)

Presentations for conferences and symposia during the last 35 years

7/17/89 - 7/21/89	XII AIRAPT and the XXVII EHPRG (European High Pressure Research Group) International Conference on High Pressure Science and Technology, Paderborn, Germany
6/01/90 - 6/05/90	Int. Conference on Plastic Deformation of Metals, Varna, Bulgaria
7/08/90 - 7/13/90	High Pressure and Materials, XXVIII EHPRG Annual Meeting, Bordeaux, France
7/22/91 - 7/25/91	IUTAM Symposium on Constitutive Relations for Finite Deformation of Polycrystalline Metals, Beijing, China
8/07/91 - 8/09/91	MECAMAT'91 International Seminar on Large Plastic Deformations, Fundamental Aspects and Applications to Metal Forming, Fontainebleau, France
8/12/91 - 8/16/91	Plasticity 91, Grenoble, France
8/19/91 - 8/23/91	VII All-Union Congress on Theoretical and Applied Mechanics, Moscow, Russia
9/09/91 - 9/13/91	1st European Solid Mechanics Conference, Munich, Germany
10/21/91 - 10/25/91	XXIX Annual Scientific Meeting of the EHPRG on Physics of Materials under High Pressure, Thessaloniki, Greece
8/22/92 - 8/28/92	XVIII IUTAM Int. Congress of Theoretical and Applied Mechanics, Haifa, Israel
10/05/92 - 10/09/92	XXX Annual Meeting of the EHPRG, Baku, Azerbajan Republic
4/12/93 - 4/16/93	GAMM Annual Meeting, Dresden, Germany
7/06/93 - 7/08/93	MECAMAT'93 International Seminar on Micromechanics of Materials, Fontainebleau, France
10/12/93 - 10/16/93	IV European Conference on Materials and Technologies "East-West", Sankt-Petersburg, Russia
3/04/94	GAMM-Section "Theory of Materials", Munich, Germany
4/04/94 - 4/08/94	GAMM Annual Meeting, Braunschweig, Germany
5/23/94 - 5/27/94	Euromech 321. Microstructures and Phase Transitions in Solids, Udine, CISM, Italy
7/31/94 - 8/06/94	International Meeting "Mechanics of Materials", Mathematical Research Institute Oberwolfach, Germany
9/14/94 - 9/16/94	III European Symposium on Martensitic Transformations, Barcelona, Spain
9/18/94 - 9/23/94	Workshop "Large Plastic Deformation", Bad Honnef, Germany
5/16/95 - 5/19/95	MECAMAT'95 International Seminar "Mechanisms and Mechanics of Solid-Solid Phase Transformations", La Bresse, France
7/03/95 - 7/07/95	International Congress on Industrial and Applied Mathematics, Hamburg
7/06/95 - 7/07/95	Symposium on Modeling of Structural and Functional Materials, Stuttgart
8/20/95 - 8/25/95	International Conference on Martensitic Transformations, Lausanne, Switzerland
8/29/95 - 9/01/95	IUTAM Symposium on Micromechanics of Plasticity and Damage of Multiphase Materials, Paris, France
9/10/95 - 9/15/95	Joint XV AIRAPT & XXXIII EHPRG International Conference on High Pressure Science & Technology, Warsaw, Poland
10/29/95 - 11/01/95	32nd Annual Meeting of Society of Engineering Science, **Keynote Lecture** (International Journal of Engineering Sciences Distinguished Paper Award), New Orleans, U.S.A.
5/27/96 - 5/31/96	GAMM Annual Meeting, Prague, Czech Republic
9/22/96 - 9/28/96	International Meeting "Thermodynamical Theory of Materials", Mathematical Research Institute Oberwolfach, Germany
10/7/96 - 10/8/96	International Workshop "Computational Mechanics of Material", Hamburg
10/20/96 - 10/23/96	33nd Annual Meeting of Society of Engineering Science, Tempe, AZ, U.S.A.
4/23/97 - 4/27/97	GAMM Annual Meeting, Regensburg, Germany

6/29/97 - 7/2/97	Joint ASME, ASCE and SES Summer Meeting, Evanston, IL, U.S.A.
7/14/97 - 7/18/97	Plasticity 97, Juneau, Alaska, U.S.A.
8/25/97 - 8/29/97	IUTAM Symposium "Micro- and Macrostructural Aspects of Thermoplasticity" **Keynote Lecture**, Bochum, Germany
11/16/97 - 11/21/97	ASME International Mechanical Engineering Congress, Dallas, TX, U.S.A.
4/6/98 - 4/9/98	GAMM Annual Meeting, Bremen, Germany
6/21/98 - 6/26/98	13th U.S. National Congress of Applied Mechanics, Gainesville, FL, U.S.A.
6/29/98 - 6/30/98	Martensite Theory Workshop, Evanston, IL, U.S.A.
8/24/98 - 8/28/98	International Meeting "Mechanics of Materials", Mathematical Research Institute Oberwolfach, Germany
9/21/98 - 9/23/98	International Seminar: Martensitic Phase Transitions: Aspects of Material Science, Continuum Mechanics and Applied Mathematics, Hannover, Germany
11/15/98 - 11/20/98	ASME Int. Mechanical Engineering Congress, Anaheim, CA, U.S.A.
1/5/99 - 1/13/99	Plasticity'99, **Keynote Lecture**, Cancun, Mexico
6/27/99 - 6/30/99	ASME Mechanics and Materials Conference, Blacksburg, U.S.A.
7/27/99 - 7/30/99	4^{th} International Conf. "Constitutive Laws for Engineering Materials: Experiment, Theory, Computation and Applications", **Keynote Lecture**, Troy, NY
10/25/99 - 10/27/99	36th Annual Meeting Society of Engineering Science, Austin, TX, U.S.A
11/14/99 - 11/19/99	ASME Int. Mechanical Engineering Congress, Nashville, TN, U.S.A.
8/16/00 - 8/20/00	Plasticity'00, **Keynote Lecture**, Whistler, Canada
8/27/00 - 9/2/00	International Congress of Theoretical and Applied Mechanics, Chicago, IL, U.S.A
9/20/00 - 9/22/00	AERO-SMART Workshop, Texas A & M University, College Station, TX, U.S.A.
10/23/00 - 10/25/00	37th Annual Meeting Society of Engineering Science, Columbia, SC, U.S.A
6/27/01 - 6/29/01	Joint ASME, ASCE and SES Mechanics and Materials Conf., San Diego, CA
7/04/01 - 7/06/01	International Conference "Superhard Tool Materials-2001", **Invited Lecture**, Kiev, Ukraine
1/02/02 - 1/08/02	Plasticity'02, **Keynote Lecture**, Aruba
6/23/02 - 6/28/02	Gordon Conference "Research at High Pressure", Meriden, NH
10/13/02 - 10/16/02	39th Annual Meeting Society of Engineering Science, University Park, PA, U.S.A
3/03/03- 8/03/03	Annual Meeting of American Physical Society, Austin, TX
6/07/03 - 13/07/03	Plasticity'03, **Keynote Lecture**, Quebec, Canada
10/12/03 - 10/16/03	40th Annual Meeting Society of Engineering Science, Ann Arbor, MI, U.S.A
05/11/04- 05/15/04	NATO Advanced Research Workshop "Innovative Superhard Materials and Sustainable Coatings", **Invited Lecture**, Kiev, Ukraine.
8/15/04 - 8/20/04	International Congress of Theoretical and Applied Mechanics, Warsaw, Poland
1/03/05 - 1/08/05	Plasticity'05, **2 Keynote Lectures**, Kauai, Hawaii
1/13/05-1/14/05	Workshop on Martensitic Phase Transformations, LANL
6/1/05/-6/3/05	Joint ASME, ASCE and SES Conference on Mechanics and Materials, **Invited Lecture**,Baton Rouge, Louisiana
6/21/05 - 7/15/05	Joint 20 AIRAPT & 43 EHPRG International Conference on Science & Technology of High Pressure, Karlsruhe, Germany
8/15/05-8/16/05	3rd Annual Workshop on High Pressure Phase Transformations, **Keynote Lecture**, Knoxville, TN
9/19/05-9/22/05	LANL Energetic Materials Review, Los Alamos, NM
3/12/06-3/16/06	TMS Annual Meeting, **Invited Lecture**, San Antonio, TX
7/17/06 - 7/22/06	Plasticity'06, **2 Keynote Lectures**, Halifax, Canada
9/13/06	National Warheads and Energetics Consortium General Membership Meeting, Boston, MA
10/02/06-10/06/06	LANL Energetic Materials Review, Los Alamos, NM
2/15/07-2/16/07	ONR 6.1 Energetic Materials Technical Review and Planning Workshop, Arlington, VA
2/26/07-3/01/07	TMS Annual Meeting, **Invited Lecture**, Orlando, FL

4/03/07-4/05/07	Army Solid Mechanics Conference, Baltimore, MD
6/03/07-6/07/07	McMat 2007: ASME Applied Mechanics and Materials Conference, **Invited Lecture**, Austin, TX
9/17/07-9/21/07	7th International Symposium on Special Topics in Chemical Propulsion (7-ISICP), **Plenary Lecture**, Kyoto, Japan
10/21/07-10/24/07	44th Annual Meeting Society of Engineering Science, College Station, TX, USA
11/04/07-11/08/07	4th Workshop on Explosive Behaviors, Santa Fe, NM, USA
1/02/08 - 1/07/08	Plasticity'08, **Keynote Lecture**, Kona, Hawaii
1/07/08 - 1/10/08	NSF CMMI Engineering and Innovation Conference (Grantee Meeting) 2008, Knoxville, TN
1/22/08 - 1/25/08	4th Advanced Energetics Technical Exchange (DoD Grantee Meeting), DTRA, Fort Belvoir, VA
5/1/08 - 5/2/08	DARPA Proposer's Workshop on the Reactive Material Structures, Arlington, VA
6/15/08-6/20/08	Gordon Research Conferences on Energetic Materials, **Invited Lecture**, Tilton, NH
6/29/08-7/04/08	International Conference on Martensitic Transformations, **Invited Lecture**, Santa Fe, NM
9/11/08-9/12/08	Advanced Solid Rocket Propulsion Program Planning Meeting, Arlington, VA
10/13/08-10/15/08	44th Annual Meeting Society of Engineering Science, Urbana-Champaign, IL (**two invited talks**)
1/3/09-1/8/09	Plasticity'09, **Keynote Lecture**, St. Thomas, U.S. Virgin Islands
7/27/09 - 8/7/09	International Conference and Advanced School "Turbulent Mixing and Beyond," **Invited Lecture**, International Center for Theoretical Physics in Trieste, Italy
9/16/09-9/17/09	Grantee meeting, Office of Naval Research, Advanced Reactive and Energetic Materials, Arlington, VA
10/26/09-10/27/09	Grantee meeting of the Defense Threat Reduction Agency, Washington, DC
1/3/10 - 1/8/10	Plasticity'10, **three Keynote Lectures**, two of them are given by co-authors, St. Kitts, West Indies
5/16/10 - 5/21/10	IV European Conference on Computational Mechanics (ECCM2010), Paris, France, **Invited Lecture**
5/27/10 - 5/28/10	Army Workshop on Intelligent and Active Protective Systems for Dynamic Load Mitigation (**Invited lecture**), Aberdeen, MD
7/27/10 - 8/02/10	16th U.S. National Congress of Theoretical and Applied Mechanics, Penn State, State College, Pennsylvania
8/16/10 - 8/18/10	Grantee meeting of the Defense Threat Reduction Agency, Washington, DC
10/03/10-10/06/10	47th Annual Meeting Society of Engineering Science, Ames, IA (**Invited talk**)
1/3/11 - 1/8/11	Plasticity'11, Puerto Vallarta, Mexico (**Keynote Lecture**).
5/30/11 - 6/1/11	ASME Applied Mechanics and Materials Conference, Chicago, IL (**Invited Talk**).
6/27/11 - 6/29/11	CISM course "Plasticity and Beyond: Microstructures, Crystal-Plasticity and Phase Transitions" (**Six lectures**), Udine, Italy.
6/29/11 - 7/1/11	International Conference on High Pressure Effects on Materials, Kiev, Ukraine (**Closing Keynote Lecture**).
7/27/11 - 7/29/11	Grantee meeting of the Defense Threat Reduction Agency, Washington, DC
10/12/11-10/14/11	48th Annual Meeting Society of Engineering Science, Evanston, IL (**Invited talk**)
1/3/12 - 1/8/12	Plasticity'12, Puerto Rico, USA (**two Keynote Lectures**, one of them is given by my co-author).
3/11/12-3/16/12	TMS Annual Meeting, **Invited Lecture**, Orlando, FL
7/9/12-7/13/12	8th European Solid Mechanics Conference (EUROMECH 2012), **Keynote Lecture**, Graz, Austria

9/23/12-9/26/12	22nd International Workshop on Computational Mechanics of Materials (IWCMM XXII), Baltimore, MD (**Keynote Lecture**)
10/09/12-10/12/12	49th Annual Meeting Society of Engineering Science, Atlanta, GA
12/04/12-12/05/12	DARPA Extended Solids Kick-Off Meeting, Arlington, VA
1/3/13 - 1/8/13	Plasticity'13, Nassau, Bahamas, **Keynote Lecture**
1/27/13 - 2/1/13	37th International Conference and Exposition on Advanced Ceramics and Composites, Armor Ceramics Symposium, Daytona Beach, Florida, **Invited Lecture**
4/10/13 - 4/12/13	Mach Conference, Annapolis, MD
7/28/13-7/31/13	50th Annual Meeting Society of Engineering Science, Providence, RI, **invited talk**
9/23/13-9/24/13	DARPA Extended Solids Grantee Meeting, Arlington, VA
12/10/13-12/11/13	Materials in Extreme Environments, Army Science Planning and Strategy Meeting, Towson, MD, **Invited talk**.
1/3/14 - 1/8/14	Plasticity'14, Freeport, Bahamas, **Keynote Lecture**
4/9/14 - 4/11/14	Mach Conference, Annapolis, MD
6/15/14 - 6/20/14	17th U.S. National Congress on Theoretical & Applied Mechanics, USNCTAM-2014, East Lansing, MI, **Keynote lecture**
7/6/14 - 7/11/14	International Conference on Martensitic Transformations, ICOMAT-2014, Bilbau, Spain, **Invited lecture**.
7/20/14 - 7/25/14	11th World Congress on Computational Mechanics (WCCM XI), 2014, Barcelona, Spain, **Keynote lecture**.
8/26/14 - 8/29/14	Third International Symposium on Phase-field Method, State College, PA, 2014, **Invited lecture**.
9/15/14 - 9/18/14	2014 Triservice Energetic Materials Basic Science Review, Arlington, VA.
9/30/14-10/3/14	51st Annual Meeting Society of Engineering Science, Lafayette, IN, one contributed and one **invited talks**
11/16/14-11/20/14	ASME International Mechanical Engineering Congress, Montreal, Canada, **Invited lecture**.
4/1/15-9/1/15	21^{st} International Conference on Plasticity, Damage & Fracture 2015, Montego Bay, Jamaica, **Keynote lecture**.
7/6/15-7/10/15	9th European Solid Mechanics Conference, Madrid, Spain
10/25/15-10/28/15	52nd Annual Meeting Society of Engineering Science, College Station, TX, two talks.
3/1/16-9/1/16	22^{nd} International Conference on Plasticity, Damage & Fracture 2016, Kona, Hawaii, **Keynote lecture**.
30/5/16-4/6/16	International Conference on Emerging Trends In Applied Mathematics And Mechanics, Perpignan, France, **Keynote lecture.**
5/6/16-10/6/16	European Congress on Computational Methods in Applied Sciences and Engineering, Crete Island, Greece
8/17/16 - 8/19/16	2016 Triservice Energetic Materials Basic Science Review, Arlington, VA.
8/20/16 - 8/26/16	24th International Congress of Theoretical and Applied Mechanics, Montreal, Quebec, Canada, **invited talk.**
10/02/16-10/05/16	53d Annual Meeting Society of Engineering Science, College Park, Maryland, **two invited** and one contributed talks.
3/1/17-9/1/17	23^{rd} International Conference on Plasticity, Damage & Fracture 2017, Puerto Vallarta, Mexico, **Keynote lecture**.
6/13/17-6/17/17	5th International Conference on Material Modelling, Rome, Italy.
7/9/17-7/14/17	International Conference on Martensitic Transformations, ICOMAT-2017, Chicago, IL, **Keynote lecture**.
7/25/17-7/28/17	54th Annual Meeting Society of Engineering Science, jointly with ASME-AMD, Boston, Massachusetts, **two invited** talks.

8/18/17-8/24/17	26th International Conference on High Pressure Science & Technology (AIRAPT26) joint with 8th Asian Conference on High Pressure Research (ACHPR8) and 19th China High Pressure Conference (CHPC19), Beijing, China, **invited lecture**.
8/27/17-9/1/17	15th International conference of advanced materials (IUMRS-ICAM), Kyoto, Japan, **invited lecture**.
9/2/17-9/5/17	International workshop on Giant Straining for Advanced Materials (GSAM2017), Fukuoka, Japan, **keynote lecture**.
10/9/17-10/12/17	Materials Science & Technology (MS&T), Pittsburgh, PA, **invited lecture**.
3/1/18-8/1/18	24^{th} International Conference on Plasticity, Damage & Fracture 2018, San Juan, Puerto Rico, USA, **plenary lecture due to Khan International award**.
3/11/18-3/15/18	147^{th} TMS Annual Meeting, **invited lecture**, Phoenix, AR
6/5/18-6/9/18	18^{th} U.S. National Congress of Theoretical and Applied Mechanics, Evanston, IL, **keynote lecture**
6/24/18-6/29/18	XIV International Conference on Nanostructured Materials (Nano 2018), City University of Hong Kong, **invited lecture** and contributed talk.
7/1/18-7/6/18	10th European Solid Mechanics Conference, Bologna, **invited talk**.
7/22/18-7/27/18	13th World Congress on Computational Mechanics, New York City.
8/14/18 - 8/16/18	2018 Triservice Energetic Materials Basic Science Review, Arlington, VA.
9/3/18 - 9/4/18	CECAM workshop on "Phase Transformations and Plasticity in Crystals: Atomistic to Continuum Models", Milan, Italy, 2018, **keynote lecture**.
9/5/18 - 9/7/18	56th European High Pressure Research Group Meeting (EHPRG), Aveiro, Portugal.
1/3/19-1/9/19	25^{th} International Conference on Plasticity, Damage & Fracture 2019, Panama City, Panama, **keynote lecture**.
7/22/19 - 7/25/19	Fourth International Symposium on Phase-field Method, Bochum, Germany, 2019, **keynote lecture**.
8/4/19-8/9/19	27th International Conference on High Pressure Science and Technology (AIRAPT'27), Rio de Janeiro, Brazil, **invited lecture**.
8/19/19 - 8/23/19	2019 Triservice Energetic Materials Basic Science Review, Arlington, VA.
10/13/19-10/15/19	53d Annual Meeting Society of Engineering Science, St Louis, Missouri **one invited** and one contributed talks.
11/10/19-11/14/19	ASME International Mechanical Engineering Congress & Exposition, Salt Lake City, Utah, **invited lecture**.
1/3/20-1/9/20	26^{th} International Conference on Plasticity, Damage & Fracture, Rivera Maya, Mexico, **keynote lecture**.
2/23/20-2/27/20	149^{th} TMS Annual Meeting, San Diego, **invited lecture** and contributed talk.
9/6/20-9/11/20	58^{th} European High Pressure Research Group (EHPRG) International Conference, Canary Island of Tenerife, **invited lecture** and contributed talk.
9/29/20-10/1/20	Virtual Technical Meeting of the Society of Engineering Science, **invited talk** and contributed talk.
7/25/21-7/29/21	16th U.S. National Congress on Computational Mechanics (USNCCM), virtual conference, **keynote lecture** and coauthored 5 contributed talks.
9/19/21-9/23/21	36th Technical Conference of the American Society for Composites (ASC), virtual conference, Texas A&M, **invited talk**.
11/22/21-11/26/21	10^{th} Asian Conference on High Pressure Research (ACHPR-10), virtual, Korea, **keynote lecture** and contributed talk; coauthored 10 contributed talks.
2/08-2/10/22	International Conference on Recent Advances in High Pressure Science and Technology, Indira Gandhi Centre for Atomic Research, Kalpakkam, India, virtual conference. **Plenary lecture and coauthored 2 invited talks**; coauthored 3 contributed talks.

3/13-3/18/22	International Conference on Martensitic Transformations (ICOMAT 2022), Jeju Island, Korea, virtual conference. **Invited lecture and coauthor on another invited lecture** and 6 contributed talks.
6/19-6/24/22	19^{th} U.S. National Congress of Theoretical and Applied Mechanics, Austin, TX, **keynote lecture** and contributed talk.
7/4-7/8/22	11^{th} European Solid Mechanics Conference (ESMC), Galway, Ireland, **keynote lecture.**
8/21-8/26/22	General conference of the Condensed Matter Division of the European Physical Society (CMD29), Manchester, UK, virtual **invited lecture**.
9/5-9/8/22	59th European High Pressure Research Group International Conference, virtual conference, Uppsala, Sweden, **invited lecture**, contributed talk, and 8 contributed talks given by coauthors.
10/2-10/7/22	10th International Conference on Multiscale Materials Modeling (MMM10), Baltimore, Maryland, **keynote lecture**.
10/16-10/19/22	Society of Engineering Science (SES) Annual Technical Meeting, College Station, TX, **keynote and invited lectures**.
12/5-12/9/22	6th Multifunctional Materials for Defense Workshop, Arlington, VA, **invited talk**.
12/11-12/16/22	AGU (American Geophysical Union) Fall Meeting 2022, Chicago, Il, two presentations.
1/3-1/9/23	International Conference on Plasticity, Damage & Fracture, Dominican Republic, **opening semi-plenary lecture** and two coauthored presentations.
2/26-3/3/23	8^{th} International Conference on Nanostructured Materials by Severe Plastic Deformation (NanoSPD8), Bangalore, India, February 26 - March 3, 2023, **opening plenary lecture** and one contributed talk given by a coauthor.
6/18-6/23/23	23^{rd} Biennial Conference of the American Physical Societys (APS) Topical Group on Shock Compression of Condensed Matter (SCCM), Chicago, Il, **invited lecture** and one contributed talk, as well as 4 talks given by coauthors.
7/23-7/28/23	Joint 28^{th} AIRAPT and 60^{th} EHPRG International Conference on High Pressure Science and Technology, Edinburgh, UK
8/28-8/31/23	55^{th} assembly of Advanced Materials Congress (AMC), Stockholm, Sweden, virtual **invited Advanced Materials Lecture** on occasion of becoming a Fellow of the International Association of Advanced Materials (IAAM).
10/8-10/10/23	23^{rd} Society of Engineering Science (SES) Annual Technical Meeting, Minneapolis, MN, October 8-11, 2023, **keynote lecture**, contributed talk, and coauthoring two contributed talks.
1/3-1/9/24	28^{th} International Conference on Plasticity, Damage & Fracture, Panama City, Panama, **distinguished keynote lecture**.
7/23-7/26	2024 MATS Symposium and Workshop: Innovations for a Changing Environment, San Diego, USA, July 23-26, 2024, **invited lecture**.
9/1-9/6	61^{st} European High Pressure Research Group (EHPRG) Meeting, Thessaloniki, Greece, September, 1-6, 2024, **plenary lecture**.

Invited presentations for seminars during the last 30 years

1994 University of Hannover, Germany (E. Stein, C. Miehe)
University of Kassel, Germany (P. Haupt)
Technical University of Wien, Austria (F. Ziegler, F. G. Rammerstorfer)
University of München, Germany (H. Lippmann)
Technical University of Wien, Austria (F. G. Rammerstorfer)
Technical High School of Darmstadt, Germany (K. Hutter, W. Ehlers)

1995 University of Hannover, Germany (E. Stein, C. Miehe)
Massachusetts Institute of Technology, Cambridge (A. Argon, R. Abeyaratne, L. Anand)
Rutgers University, Piscataway (G. Weng, M. Grinfeld)
University of München, Germany (H. Lippmann)
University of Hannover, Germany (E. Stein)

1996 NIST, Gaithersburg (J. W. Cahn, A. Roytburd)
University of California, San Diego (M. A. Meyers, S. Nemat-Nasser, V. Nesterenko)
University of Utah, Salt Lake City (A. V. Cherkaev)
Northwestern University, Evanston (G. Olson, Z. Bazant, J. Weertman)
Brown University, Providence (R. Clifton)
Harvard University, Cambridge (J. Rice, B. Budiansky)
University of Hannover, Germany (E. Stein)

1997 CNRS, Paris (G. Maugin)
University of Maryland, College Park (R. Armstrong, W. Fourney, A. Roytburd)
University of Bayreuth, Germany (F. Mayinger)
Rensselaer Polytechnic Institute, Troy, NJ (G. Dvorak, E. Krempl, J. Fish, J. Tishy)
University of Michigan, Ann Arbor (J. Taylor, A. Waas)
Stanford University, Stanford (C. Steele, H. Gao)

1998 University of Dortmund, Germany (S. Kessel, K. Therman)
University of Weimar, Germany (C. Bucher)
Max-Planck-Institute for Steel Research, Düsseldorf, Germany (P. Neunmann, O. Pawelski)
Los Alamos National Laboratory (E. Mottola, F. Harlow, F. Addessio)
University of California, San Diego (M. A. Meyers, V. Nesterenko)
Los Alamos National Laboratory (S. Hecker, M. Stevens, D. Preston)

1999 University of Hannover, Germany (P. Wriggers)
University of Braunschweig, Germany (E. Steck, J. Rösler)
Texas Tech University, Lubbock (T. Burton)

2000 Army Research Laboratory, Aberdeen Proving Ground, MD (R. Frey, A. Dietrich, T. Wright)
University of Texas at Austin (J. T. Oden, G. Rodin, L. F. Demkoviwicz)
Texas A&M University, College Station (K. R. Rajagopal, D. Lagoudas)

2001 Los Alamos National Laboratory (T. Dey, A. Rodondo, F. Addessio)
Los Alamos National Laboratory (F. Addessio, T. Lookman, A. Saxena)
Texas Tech University, Lubbock (T. Burton)

2002 Geophysical Laboratory, Carnegie Institution of Washington (D. Mao, R. Hemley)
Army Research Laboratory, Aberdeen Proving Ground, MD (J. McCouley, T. Wright, S. Schoenfeld, M. Grinfeld)

2003 Los Alamos National Laboratory (Y. Zhao, D. Preston, S. Hecker)
Institute for Superhard Materials, Kiev, Ukraine (N.V. Novikov, I. Petrusha, V. Britun)

2004 Southern Methodist University, Dallas, TX (Y. Hermizly, R. Kovacevic)

2005 Los Alamos National Laboratory (B. Henson, L. Smilovitz, D. Shieferl, B. Asay)
University of München, Germany (E. Werner)

2006 Massachusetts Institute of Technology, Cambridge (A. Argon, L. Anand)
Los Alamos National Laboratory (J. Hammerberg, R. Ravelo, T. Lookman, A. Saxena)

2007 Indian Head Division of Naval Surface Warfare Center, Indian Head, MD (G. Pangilinan, R. Guirguis, R. J. Jouet, J. Gump)
Institute for Superhard Materials, Kiev, Ukraine (N.V. Novikov, V.Z. Turkevich, A.A. Leschuk)
Sandia National Laboratories, Albuquerque, NM (A. Tappan, J. Huang)

2008 Iowa State University, Ames, Iowa (J. Wickert, T. Shih, R. LeSar)
Texas Tech University, Lubbock, TX (G. McKenna, S. Simon, W. Hase, J. Hashemi)
Iowa State University, Ames, Iowa (T. Rudolphi, K. Gschneidner, A. Bastawros)
Ames Laboratory, Ames, Iowa (T. Lograsso, I. Anderson, R. Napolitano)

2009 Army Research Laboratory, Aberdeen Proving Ground, MD (B. Forch, B. Rice, T. Wright, M. Grinfeld)
Armament Research, Development and Engineering Center (ARDEC), Picatinny, N.J. (P. Radner, D. Kappor)
Iowa State University, Ames, Iowa, Center for Computational Fluid Dynamics (Z.J. Wang, T. Shih, P. Durbin)
Institute for Superhard Materials, Kiev, Ukraine (N.V. Novikov, V.Z. Turkevich, A.A. Leschuk)

2010 University of Minnesota, Minneapolis, MN (R. James, R. Fosdick, P. Leo, T. Shield, E. Tadmor)
Institute for Superhard Materials, Kiev, Ukraine (V.Z. Turkevich, A.A. Leschuk, A.L. Maystrenko)

2011 Texas Tech University, Lubbock, TX (A. Sacco, A. Jankowski, J. Chanudhuri)
NIST, Gaithersburg (J. Warren, A. Roytburd)
Ames Laboratory (M. Kremmer, M. Mendelev, R. Ott)
Institute for Superhard Materials, Kiev, Ukraine (N. V. Novikov, V.Z. Turkevich, A.A. Leschuk, V.M. Kusch, V.I. Perevertaylo)

2012 Florida Atlantic University, Boca Raton, FL (J. Hashemi, I. Elishakoff, L. Carlsson)
Ruhr University Bochum, Bochum, Germany (A. Hartmaier, K. Hackl)
University Erlangen-Nuernberg, Nuernberg, Germany (P. Steinmann)

2013 Army Research Laboratory, Aberdeen Proving Ground, MD (B. Forch, B. Rice, M. Grinfeld, J. McCouley)
Iowa State University, Ames, IA
John Hopkins University, Hopkins Extreme Materials Institute, Baltimore, MD (K.T. Ramesh, L. Graham-Brady, J. Beatty, M. Robbins, T. Wright)

2014 Geophysical Laboratory, Carnegie Institution of Washington (R. Hemley, A. Goncharov, R. Cohen, T. Strobel, V. Struzhkin)
Geophysical Laboratory, Carnegie Institution of Washington (R. Hemley, R. Cohen, R. Boehler, V. Struzhkin, M. Somayazulu, I. Naumov, M. Aihaiti)
Geophysical Laboratory, Carnegie Institution of Washington (R. Hemley, R. Boehler, Y. Fei, I. Naumov, M. Somayazulu, M. Aihaiti)
University of Maryland, Departments of Chemistry and Chemical and Biomolecular Engineering (M. Zachariah)

2015 University Erlangen-Nuernberg, Nuernberg, Germany (P. Steinmann)
Max-Planck-Institute for Steel Research, Düsseldorf, Germany (D. Raabe)
NIST, Gaithersburg (J. Warren, Y. Mishin, W. Boettinger)

2016 United Technology Research Center, East Hartford, CN (A. Staroselsky).

2017 Ames Laboratory, CaloriCool group, Ames, IA (V. Pecharsky, D. Johnson, V. Balema)
Department of Physics and Astronomy of ISU, Condensed Matter Physics seminar, Ames, IA (P. Canfield, S. Bud'ko, M. Kramer, D. Argyriou, D. Johnson)
Department of Mechanical Engineering, University of Illinois at Urbana-Champaign (I. Jasiuk, M. Ostoja-Starzewski, P. Bellon)

2018 Advance Photon Sources (APS) High Pressure Collaborative Access Team Meeting, Argonne, IL (S. Sinogeikin, C. Park, D. Popov, R. Hrubiak, Y. Meng)
Max-Planck-Institute for Steel Research, Düsseldorf, Germany (R. D. Kamachali)

2019 Lawrence Livermore National Laboratory, Livermore, CA, 2 presentations (J. Belak, N. Barton, H. Cynn, V. Bulatov, J. Belof, E. Stavrou)

Advance Photon Sources (APS) High Pressure Collaborative Access Team (HPCAT) Meeting, Argonne, IL, 2 presentations (N. Velisavljevic, M. Somayazulu, C. Park, D. Popov, R. Hrubiak, G. Shen)

2020 Army Research Laboratory, Aberdeen Proving Ground, MD (D. Stepp, D. Cole, J. Clayton, R. Becker, T. Jenkins, J. Cazamias)
Indian Head Division of Naval Surface Warfare Center, Indian Head, MD (C. Stoltz, Z. Dreger, V. Joshi, S. Dwivedi, D. Stamatis)
CDAC (Chicago/DoE Alliance Center) webinar, University of Illinois at Chicago, Il (R. Hemley, N. Velisavljevic, V. Prakapenka, S. Mathaudhu, A. Devaraj, S. Buga)

2021 National Science Foundation, Arlington, VA

2022 University of California, Berkeley, CA (R. Jeanloz, T. Smart, S. Hsieh).

2022 National Science Foundation, Arlington, VA

2023 Theoretical and Applied Mechanics seminar, Northwestern University, Evanston, IL (Z. Bazant)

2023 Advance Photon Sources (APS) High Pressure Collaborative Access Team (HPCAT) Meeting, Argonne, IL (N. Velisavljevic, M. Somayazulu, C. Park, D. Popov, Y. Meng)

2023 Advance Photon Sources (APS) High Pressure Collaborative Access Team (HPCAT) Meeting, Argonne, IL, virtual seminar (N. Velisavljevic, C. Park, D. Popov)

2024 CDAC (Chicago/DoE Alliance Center) webinar, University of Illinois at Chicago, Il (R. Hemley, C.W. Chu, S. Mathaudhu, W. Chen, A. Devaraj, M. Billen, P. Cordier, A. Navrotsky, J. Schilling, Y. Vohra, L. Miagi, S. Buga, S. Sinogeikin, T. Jenkins., F. Delogu, I. Steinbach, H. Petryk, A. Courac)

2024 University of Vienna, Department of Physics, Vienna, Austria (M. Zehetbauer, R. Schafler, R. Miletich)

2024 Karlsruhe Institute of Technology, Institute of Nanotechnology, Karlsruhe, Germany (J. Ivanisenko, D. Schneider)

2024 Institute of Fundamental Technological Research, Department of Mechanics of Materials, Warsaw, Poland (S. Stupkiewicz, H. Petryk, Z. Mrooz)

2024 University of California, Berkeley, CA (R. Jeanloz)

LIST OF PUBLICATIONS

BY VALERY I. LEVITAS

Monographs

[1] Large Deformation of Materials with Complex Rheological Properties at Normal and High Pressure. **Levitas V.I.** New York, Nova Science Publishers, 1996.

[2] Thermomechanics of Phase Transformations and Inelastic Deformations in Microinhomogeneous Materials. **Levitas V.I.** Kiev, Naukova Dumka, 1992.

[3] Large Elastoplastic Deformations of Materials at High Pressure. **Levitas V.I.** Kiev, Naukova Dumka, 1987.

Papers in Refereed Journals

2024

[4] Quantitative kinetic rules for plastic strain-induced α-ω phase transformation in Zr under high pressure. **Dhar A., Levitas V.I., Pandey K. K., Park C., Somayazulu M., and Velisavljevic N.** Nature NPJ Computational Materials, 2024, in press.

[5] In situ study of microstructure evolution and $\alpha \rightarrow \omega$ phase transition in annealed and pre-deformed Zr under hydrostatic loading. **Pandey K.K., Levitas V.I., Park C., and Shen G.** Journal of Applied Physics, 2024, Vol. 136, 115901, 20 pages.

[6] Unusual plastic strain-induced phase transformation phenomena in silicon. **Yesudhas S., Levitas V.I., Lin F., Pandey K. K., Smith J.** Nature Communications, 2024, Vol. 15, 7054, 13 pages and 35 pages of supplementary material.

[7] Severe Plastic Deformation of Ceramics by High-Pressure Torsion: Review of Principles and Applications. **K. Edalati, J. Hidalgo-Jiménez, T. T. Nguyen, H. Sena, N. Enikeev, G. Rogl, V. I. Levitas, Z. Horita, M. Zehetbauer, R. Z. Valiev, T. G. Langdon**. Annual Review of Materials Research, 2024, Vol. 55 (in press).

[8] Severe plastic deformation for producing superfunctional ultrafine-grained and heterostructured materials: an interdisciplinary review. **K. Edalati, A.Q. Ahmed, S. Akrami, K. Ameyama, V. Aptukov, R.N. Asfandiyarov, M. Ashida, V. Astanin, A. Bachmaier, V. Beloshenko, E.V. Bobruk, K. Bryla, J.M. Cabrera, A.P. Carvalho, N.Q. Chinh, I.C. Choi, R. Chulist, J.M. Cubero-Sesin, G. Davdian, M. Demirtas, S. Divinski, K. Durst, J. Dvorak, P. Edalati, S. Emura, N.A. Enikeev, G. Faraji, R.B. Figueiredo, R. Floriano, M. Fouladvind, D. Fruchart, M. Fuji, H. Fujiwara, M. Gajdics, D. Gheorghe, Ł. Gondek, J.E. González-Hernández, A. Gornakova, T. Grosdidier, J. Gubicza, D. Gunderov, L. He, O.F. Higuera, S. Hirosawa, A. Hohenwarter, Z. Horita, J. Horky, Y. Huang, J. Huot, Y. Ikoma, T. Ishihara, Y. Ivanisenko, J.I. Jang, A.M. Jorge Jr, M. Kawabata-Ota, M. Kawasaki, T. Khelfa, J. Kobayashi, L. Kommel, A. Korneva, P. Kral, N. Kudriashova, S. Kuramoto,**

T.G. Langdon, D.H. Lee, V.I. Levitas, C. Li, H.W. Li, Y. Li, Z. Li, H.J. Lin, K.D. Liss, Y. Liu, D.M. Marulanda Cardona, K. Matsuda, A. Mazilkin, Y. Mine, H. Miyamoto, S.C. Moon, T. Müller, J.A. Muñoz, M.Y. Murashkin, M. Naeem, M. Novelli, D. Olasz, R. Pippan, V.V. Popov, E.N. Popova, G. Purcek, P. de Rango, O. Renk, D. Retraint, Á. Révész, V. Roche, P. Rodriguez-Calvillo, L. Romero-Resendiz, X. Sauvage, T. Sawaguchi, H. Sena, H. Shahmir, X. Shi, V. Sklenicka, W. Skrotzki, N. Skryabina, F. Staab, B. Straumal, Z. Sun, M. Szczerba, Y. Takizawa, Y. Tang, R.Z. Valiev, A. Vozniak, A. Voznyak, B. Wang, J.T. Wang, G. Wilde, F. Zhang, M. Zhang, P. Zhang, J. Zhou, X. Zhu, Y.T. Zhu, Journal of Alloys and Compounds, 2024, Vol. 2002, 174667, 150 pages.

2023

[9] Tensorial stress-plastic strain fields in α - ω Zr mixture, transformation kinetics, and friction in diamond anvil cell. **Levitas V.I., Dhar A., and Pandey K.K.** Nature Communications, 2023, Vol. 14, 5955, 9 p. and 32 p. of Supplementary Materials.

[10] Effect of a Micro-scale Dislocation Pileup on the Atomic-Scale Multi-variant Phase Transformation and Twinning. **Peng Y., Ji R., Phan T., Capolungo L., Levitas V.I., Xiong L.** Computational Materials Science, 2023, Vol. 230, 112508, 16 pages.

[11] In-situ study of rules of nanostructure evolution, severe plastic deformations, and friction under high pressure. **Lin F., Levitas V.I., Pandey K.K., Yesudhas S., and Park C.** Materials Research Letters, 2023, Vol. 11, No. 9, 757-763.

[12] Recent in situ Experimental and Theoretical Advances in Severe Plastic Deformations, Strain-Induced Phase Transformations, and Microstructure Evolution under High Pressure. **Levitas V.I.** Material Transactions, 2023, Vol. 64 (8), 1866-1878. Invited review.

[13] Simulations of multivariant Si I to Si II phase transformation in polycrystalline silicon with finite-strain scale-free phase-field approach. **Babaei H., Pratoori R., and Levitas V.I.** Acta Materialia, 2023, Vol. 254, 118996, 24 pp.

[14] A multiphase phase-field study of three-dimensional martensitic twinned microstructures at large strains. **Basak A. and Levitas V.I.**, Continuum Mechanics and Thermodynamics, 2023, Vol. 35, 1595-1624.

[15] Athermal resistance to phase interface motion due to precipitates: A phase field study. **Javanbakht M. and Levitas V.I.** Acta Materialia, 2023, Vol 242, No. 10, 118489.

2022

[16] Resolving puzzles of the phase-transformation-based mechanism of the deep-focus earthquake. **Levitas V.I.,** Nature Communications, 2022, Vol. 13, 6291, 10 p.

[17] Nontrivial nanostructure, stress relaxation mechanisms, and crystallography for pressure-induced Si-I $\rightarrow$ Si-II phase transformation. **Chen H., Levitas V.I., Popov D., and Velisavljevic N.** Nature Communication, 2022, Vol. 13, 982 (**Editor's highlight**) https://www.nature.com/collections/eecgdgijhh).

[18] Phase field theory for fracture at large strains including surface stresses. **Jafarzadeh H., Farrahic G. H., Levitas V.I., and Javanbakht M.** International Journal of Engineering Sciences, 2022, Vol. 178, 103732, 28 pages.

[19] An Atomistic-to-Microscale Computational Analysis of the Dislocation Pileup-induced Local Stresses near an Interface in Plastically Deformed Two-phase Materials. **Peng Y., Ji R., Phan T., Gao W., Levitas V.I., Xiong L.** Acta Materialia, 2022, Vol. 226, 117663, 14 pp.

[20] Nanomaterials by Severe Plastic Deformation: Review of Historical Developments and Recent Advances. **Edalati K., Bachmaier A., Beloshenko V., Beygelzimer Y., Blank V., Botta W., Bryła K., Čížek J., Divinski S., Enikeev N., Estrin Y., Faraji G., Figueiredo B., Fuji M., Furuta T., Grosdidier T., Gubicza J., Hohenwarter A., Horita Z., Huot J., Ikoma Y., Janeček M., Kawasaki M., Král P., Kuramoto S., Langdon T., Leiva D., Levitas V.I., Mazilkin A., Mito M., Miyamoto M., Nishizaki T., Pippan R., Popov V., Popova E., Purcek G., Renk O., Révész Á., Sauvage X., Sklenicka V., Skrotzki W., Straumal B., Suwas S., Toth L., Tsuji N., Valiev R., Wilde G., Zehetbauer M., Zhu X.** Materials Research Letters, 2022, Vol. 10, No. 4, 163-256, invited review.

[21] Reply to "Comment on 'Nonlinear elasticity of prestressed single crystals at high pressure and various elastic moduli."' **Levitas V.I.** Physical Review B, 2022, Vol. 105, 226102.

2021

[22] Nonlinear elasticity of prestressed single crystals at high pressure and various elastic moduli. **Levitas V.I.** Physical Review B, 2021, Vol. 104, No. 21, 214105, 32 pp.

[23] Coupled large-strain mechanochemical theory for solid-state reaction with application to oxidation. **Attariani H. and Levitas V.I.** Acta Materialia, 2021, Vol. 220, 117284, 14 p.

[24] Pseudoelastic deformation in Mo-based refractory multi-principal element alloys. **Sharma A., Singh P., Kirk T., Levitas V.I., Liaw P.K., Balasubramanian G., Arroyave R., and Johnson D.D.** Acta Materialia, 2021, Vol. 220, 117299, 9 pp.

[25] Phase transformations, fracture, and other structural changes in inelastic materials. **Levitas V.I.** International Journal of Plasticity, 2021, Vol. 140, 102914, 51 pp., invited review.

[26] Displacement field measurements in traditional and rotational diamond anvil cells. **Pandey K. K. and Levitas V. I.** Journal of Applied Physics, 2021, Vol. 129, No. 11, 115901, 8 pages (Editor's Pick).

[27] Stationary Dislocation Motion at Stresses Significantly below the Peierls Stress: Example of Shuffle Screw and 60^o Dislocations in Silicon. **Chen H., Levitas V. I., Xiong L., Zhang X.**, Acta Materialia, 2021, Vol. 206, 116623, 9 pages.

2020

[28] Finite-strain scale-free phase-field approach to multivariant martensitic phase transformations with stress-dependent effective thresholds. **Babaei H. and Levitas V.I.** Journal of the Mechanics and Physics of Solids, 2020, Vol. 144, 104114, 25 p.

[29] Strain-induced multivariant martensitic transformations: A scale-independent simulation of interaction between localized shear bands and microstructure. **Esfahani S.E., Ghamarian I., and Levitas V.I.**, Acta Materialia, 2020, Vol. 196, 430-443.

[30] Fifth-degree elastic energy for predictive continuum stress-strain relations and elastic instabilities under large strain and complex loading in silicon. **Chen H., Zarkevich N. A., Levitas V. I., Johnson D. D., and Zhang X.**, Nature NPJ Computational Materials, 2020, Vol. 6, 115, 8 pages. Supporting raw data: https://doi.org/10.25380/iastate.12668843.

[31] In situ quantitative study of plastic strain-induced phase transformations under high pressure: Example for ultra-pure Zr. **Pandey K. K. and Levitas V. I.** Acta Materialia, 2020, Vol. 196, 338-346. Supporting raw data: https://doi.org/10.25380/iastate.12563924.

[32] Aluminum Particle Reactivity as a Function of Alumina Shell Structure: Amorphous versus Crystalline. **Walzel R. K., Levitas V. I., Pantoya M. L.** Powder Technology, 2020, Vol. 374, 33-39.

[33] Shear-induced diamondization of multilayer graphene structures: A computational study. **Paul S., Momeni K., Levitas V.I.**, Carbon, 2020, Vol. 167, pp. 140-147.

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