Julia E. Medvedeva

Associate Professor
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Experience:

2014-present	*Senior Research Investigator* Graduate Center for Materials Research (MRC), Missouri S&T
2012-present	*Research Staff*, Northwestern University, Evanston, IL
2011-present	*Associate Professor* Department of Physics, Missouri S&T
2005-2011	*Assistant Professor* Department of Physics, University of Missouri Rolla, Rolla, MO
2004-2005	*Consultant for Quantum Materials Design, Inc.* Consulting provided to: Bechtel Bettis Laboratory; Seagate Technology Inc.
2002-2005	*Postdoctoral Research Fellow* Department of Physics, Northwestern University, Evanston, IL
1996-2002	*Research Assistant* Institute of Metal Physics, Russian Academy of Science, Ekaterinburg, Russia
1996-2002	*Predoctoral Research Fellow (intermittent)* Department of Physics, Northwestern University, Evanston, IL

Education:

2002 Ph.D. in Physics, Institute of Metal Physics,
Russian Academy of Science, Ekaterinburg, Russia
Thesis title: *Electronic structure, magnetic properties and orbital ordering in manganites of La-Sr-Mn-O system.* Advisor: V.I. Anisimov, co-advisor: A.J. Freeman

1999 M.S. in Physics, Department of Physics, Ural State University, Ekaterinburg, Russia
Thesis title: *The effect of Coulomb interaction and magnetic ordering on the electronic structure of two hexagonal $YMnO_3$ phases from first-principles calculations.* Advisor: V.I. Anisimov, co-advisor: A.J. Freeman

1997 B.S. in Physics, Department of Physics, Ural State University, Ekaterinburg, Russia
Thesis title: *Electronic structure and properties of pure and rare-earth-doped CaF_2 and SrF_2.* Advisor: A.E. Nikiforov

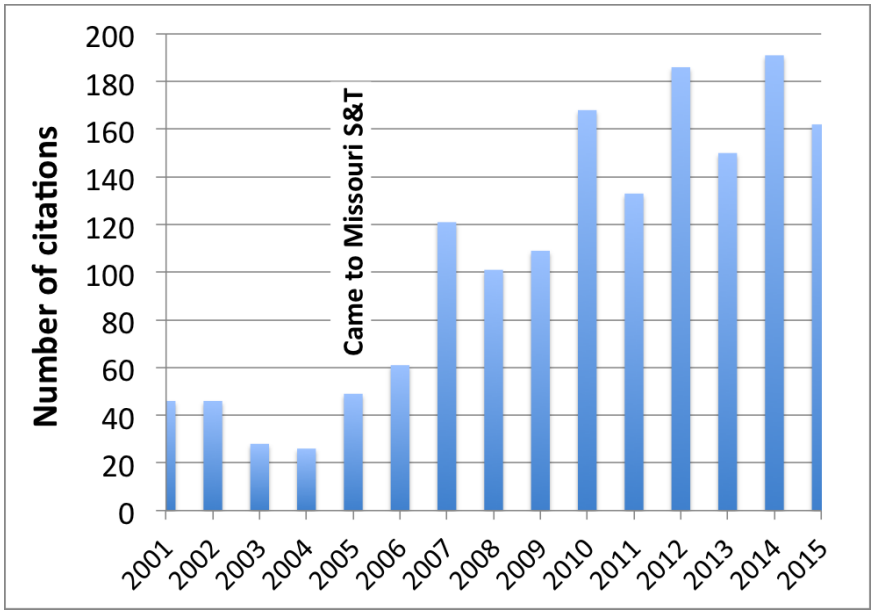
Awards:

2016	AIME Champion H. Mathewson Medal Award, TMS
2015	Gilbert R. Speich Award, Association for Iron and Steel (AIST)
2009, 2012	Faculty Research Award, Missouri S&T
2008	Faculty Excellence Award, Missouri S&T

Summary of Scholarly Activities

1 book chapter
1 MRS symposium proceedings co-editor
67 publications in refereed journals and 6 refereed conference proceedings
25 invited talks and 56 conference contributions
10 funded grants (5 single-PI, 5 collaborative) and 8 computer allocation awards

Total number of citations: 1600+
H-index (H is the number of papers each of which has been cited at least H times): 23
i10-index (the number of publications with at least 10 citations): 36



1. Publications

A. Book Chapter

[1] J.E. Medvedeva, *Combining optical transparency with electrical conductivity: challenges and prospects*, in **"Transparent Electronics: From Synthesis to Applications"**, Editors: A. Facchetti and T. Marks, Publisher: John Wiley & Sons; 2010

B. Editorial

[1] J.J. Berry, E. Fortunato, **J.E. Medvedeva**, Y. Shigesato, Materials Research Society Symposium Proceedings, Volume 1315, 2012

C. Refereed Research Articles

Submitted:

[67] Y. Qiu, K.N. Sanders, J. Dai, **J.E. Medvedeva**, W. Wu, P. Ghaemi, T. Vojta, and Y.S. Hor, *Time reversal symmetry breaking superconductivity in topological materials*, (submitted)

[66] Rabi Khanal, Kyle Nocona Sanders, Mathew Pollard, **J.E. Medvedeva**, *Structural, electronic, and optical properties of stoichiometric amorphous oxides:* $Cd_xIn_{1-x}O$, (submitted)

[65] L. Bartlett, D.C. Van Aken, **J.E. Medvedeva**, D. Isheim, N.I. Medvedeva, Kai Song, *Atom probe study of kappa-carbide precipitation in Fe-Mn-Al-C steels: Influence of phosphorus*, Met. Mat. Trans. (under review)

[64] A.S. Murthy, N.I. Medvedeva, V.L. Richards, **J.E. Medvedeva**, D.C. Van Aken, *Co addition to 17-4 PH steel. Part II: Kinetics of Cu precipitation in Co alloyed 17-4 PH steel*, Met. Mater. Trans. (under review)

Published:

[63] K. Rickert, E. Pozzi, R. Khanal, M. Onoue, G. Trimarchi, **J.E. Medvedeva**, M. Hersam, R. Van Duyne, K. Poeppelmeier, *Selective Crystal Growth and Structural, Optical, and Electronic Studies of* $Mn_3Ta_2O_8$, Inorganic Chemistry, 54, 6513-6519 (2015)

[62] J. Smith, L. Zeng, R. Khanal, K. Stallings, A.F. Facchetti, **J.E. Medvedeva**, M.J. Bedzyk, T.J. Marks, *Cation size effects on the electronic and structural properties of solution-processed In-X-O thin films,* Advanced Electronic Materials, 1(7) 1500146 (2015)

[61] R. Khanal, D.B. Buchholz, R.P.H. Chang, and **J.E. Medvedeva**, *Composition-dependent structural and transport properties of amorphous transparent conducting oxides*, Physical Review B, 91, 205203 (2015)

[60] R. Khanal, **J.E. Medvedeva**, *Role of composition in structural properties of amorphous In-based oxides: ab-initio molecular dynamics study,* Vacuum, Special issue on Transparent Coating Materials, 114, 142-149 (2015) *Front cover*

[59] N.I. Medvedeva, D.C. Van Aken, **J.E. Medvedeva**, *Stability of binary and ternary* $M_{23}C_6$ *carbides from first principles*, Computational Material Science, 96, 159164 (2015)

[58] R.P.S.M. Lobo, F. Corre, N. Bontemps, M.I. Bertoni, T.O. Mason, K.R. Poeppelmeier, A.J. Freeman, Min Sik Park, and **J.E. Medvedeva**, *Optical conductivity of mayenite: from insulator to metal*, Journal of Physical Chemistry C, 119, 88498856 (2015)

[57] K.R. Limmer, **J.E. Medvedeva**, D.C. Van Aken, and N.I. Medvedeva, *Ab initio simulation of alloying effect on stacking fault energy in fcc Fe*, Computational Material Science, 99, 253-255 (2015)

[56] D. Buchholz, Q. Ma, D. Alducin, A. Ponce, M. Jose-Yacaman, R. Khanal, **J.E. Medvedeva**, R.P.H. Chang, *The Structure and Properties of Amorphous Indium Oxide,* Chemistry of Materials, 26, 5401-5411 (2014)

[55] L. Bartlett, D.C. Van Aken, **J.E. Medvedeva**, D. Isheim, N.I. Medvedeva, Kai Song, *An atom probe study of kappa-carbide precipitation and the Effect of silicon addition*, Metallurgical and Materials Transactions A, 45A, 2014-2421 (2014)

[54] N.I. Medvedeva, M.S. Park, D.C. Van Aken, **J.E. Medvedeva**, *First-principles study of the Mn, Al, and C distribution and their effect on the stacking fault energies in fcc Fe*, Journal of Alloys and Compounds 582, 475-482 (2014)

[53] M.C. McGrath, D.C. Van Aken, N.I. Medvedeva, **J.E. Medvedeva**, *Work hardening behavior in steel with multiple TRIP mechanisms*, Metallurgical and Materials Transactions A, 44, 4634-4643 (2013)

[52] A. Murat, A. Adler, T.O. Mason, and **J.E. Medvedeva**, *Carrier Generation in Multicomponent Wide-Bandgap Oxides: $InGaZnO_4$*, Journal of the American Chemical Society, 135, 5685-5692 (2013)

[51] N.I. Medvedeva, A.S. Murthy, V.L. Richards, D.C. Van Aken, **J.E. Medvedeva**, *First-principle study of cobalt impurity in bcc Fe with Cu precipitates*, Journal of Materials Science, 48, 1377 (2013)

[50] A. Murat and **J.E. Medvedeva**, *Composition-dependent oxygen-vacancy formation in multicomponent wide-band-gap oxides*, Physical Review B, 86, 085123 (2012)

[49] A. Murat and **J.E. Medvedeva**, *Electronic properties of layered multicomponent wide-band-gap oxides: a combinatorial approach*, Physical Review B, 85, 155101 (2012).

[48] A.S. Murthy, **J.E. Medvedeva**, D. Isheim, S.L. Lekakh, V.L. Richards, D.C. Van Aken, *Copper precipitation in cobalt-alloyed precipitation-hardened stainless steel*, Scripta Materialia, 66, 943 (2012).

[47] N.I. Medvedeva, D.C. van Aken, and **J.E. Medvedeva**, *The Effect of Carbon distribution on Manganese magnetic moment in bcc Fe-Mn alloy*, Journal of Physics: Condensed Matter, 23, 326003 (2011).

[46] J. Park, S. Lee, M. Kang, K.-H. Jang, C. Lee, S.V. Streltsov, V.V. Mazurenko, M.V. Valentyuk, **J.E. Medvedeva**, T. Kamiyama, and J.-G. Park *Doping dependence of spin-lattice coupling and two-dimensional ordering in multiferroic hexagonal Y1-xLuxMnO3*, Physical Review B, 82, 054428 (2010).

[45] A.O. Shorikov, **J.E. Medvedeva**, A.I. Poteryaev, V.V. Mazurenko, A.I. Anisimov, *First-principles investigation of uranium monochalcogenides,* JETP Letters, 91, 532-535 (2010).

[44] N.I. Medvedeva, D. Van Aken, **J.E. Medvedeva**, *Magnetism in bcc and fcc Fe with carbon and manganese*, Journal of Physics: Condensed Matter, 22, 316002 (2010)

[43] Min Sik Park, Jung-Hwan Song, **J.E. Medvedeva**, M. Kim, In Gee Kim, A.J. Freeman, *Electronic structure and volume effect on thermoelectric transport in p-type bismuth and antimony tellurides*, Physical Review B, 81, 155211 (2010)

[42] **J.E. Medvedeva** and C.L. Hettiarachchi, *Tuning the properties of complex transparent conducting oxides: role of crystal symmetry, chemical composition and carrier generation*, Physical Review B, 81, 125116 (2010)

[41] N.I. Medvedeva, R.A. Howell, D. Van Aken, **J.E. Medvedeva**, *Effect of phosphorus on brittle fracture in kappa-carbide*, Physical Review B, 81, 012105 (2010)

[40] O.Yu. Gutina, N.I. Medvedeva, I.R. Shein, A.L. Ivanovskii, and **J.E. Medvedeva**, *Electronic structure and magnetic properties of Fe3C with 2p and 3p impurities*, Physica Status Solidi b, 246, 2167 (2009)

[39] X.Y. Cui, **J.E. Medvedeva**, B. Delley, A.J. Freeman, C. Stampfl *Built-in electric field assisted spin injection in Cr and Mn delta-layer doped AlN/GaN(0001) heterostructures from first principles*, Physical Review B 78, 245317 (2008)

[38] M.S. Kim, J.B. Yang, **J.E. Medvedeva**, W.B. Yelon, P.E. Parris, W.J. James, *Electronic structure of* $La_{0.7}Sr_{0.3}Mn_{1-x}Cu_xO_3$ (0.0<x<0.30), Journal of Physics: Condensed Matter 20, 255228 (2008).

[37] S. Jin, Y.Yang, **J.E. Medvedeva**, L. Wang, S. Li, N. Cortes, J.R. Ireland, A.W. Metz, J. Ni, M.C. Hersam, A.J. Freeman, T.J. Marks, *Tuning the properties of transparent oxide conductors. Dopant ion size and electronic structure effects on CdO-based transparent conducting oxides. Ga- and In-doped CdO thin films grown by MOCVD,* Chemistry of Materials, 20, 220-230 (2008)

[36] M. Bertoni, **J.E. Medvedeva**, Y.Q. Wang, A. Freeman, K.R. Poeppelmeier, and T. Mason, *Enhanced electronic conductivity in Si-substituted calcium aluminate,* Journal of Applied Physics, 102, 113704 (2007)

[35] **J.E. Medvedeva**, E.N. Teasley, M.D. Hoffman, *Electronic band structure and carrier effective mass in calcium aluminates,* Physical Review B, 76, 155107 (2007)

[34] **J.E. Medvedeva**, A.J. Freeman, C.B. Geller and D.M. Rishel, *Screened-exchange determination of the electronic properties of monoclinic, tetragonal and cubic zirconia,* Physical Review B, 76, 235115 (2007)

[33] D.G. Kellerman, **J.E. Medvedeva**, V.S. Gorshkov, A.I. Kurbakov, V.G. Zubkov, A.P. Tyutyunnik and V.A. Trunov, *Structural and magnetic properties of orthorhombic* Li_xMnO_2*,* Solid State Sciences, 9, 196-204 (2007)

[32] **J.E. Medvedeva**, *Averaging of the electron effective mass in multicomponent transparent conducting oxides,* Europhysics Letters, 78, 57004-6 (2007)

[31] X.Y. Cui, **J.E. Medvedeva**, B. Delley, A.J. Freeman, C. Stampfl, *Spatial distribution and magnetism in poly-Cr doped GaN: first-principles investigations,* Physical Review B, 75, 155205 (2007)

[30] **J.E. Medvedeva**, *Unconventional approaches to combine optical transparency with electrical conductivity,* Applied Physics A: Special Issue on Transparent Conducting Oxides, 89, 43-47 (2007)

[29] S.E. Koh, B. Delley, **J.E. Medvedeva**, A. Facchetti, A.J. Freeman, T.J. Marks, and M.A. Ratner, *Quantum chemical analysis of electronic structure and n- and p-type charge transport in perfluoroarene-modified oligothiophene semiconductors,* Journal of Physical Chemistry B, 110, 24361-24370 (2006)

[28] **J.E. Medvedeva**, *Magnetically Mediated Transparent Conductors: In_2O_3 doped with Mo,* Physical Review Letters, 97, 086401 (2006)

[27] X.Y. Cui, **J.E. Medvedeva**, B. Delley, A.J. Freeman, N. Newman, and C. Stampfl, *Role of Embedded Clustering in Dilute Magnetic Semiconductors: Cr doped GaN,* Physical Review Letters, 95, 256404 (2005)

[26] Y. Yang, S. Jin, **J.E. Medvedeva**, J.R. Ireland, A.W. Metz, J. Ni, M.C. Hersam, A.J. Freeman, and T.J. Marks, *CdO as the Archetypical Transparent Conducting Oxide. Systematics of Dopant Ionic Radius and Electronic Structure Effects on Charge Transport and Band Structure,* Journal of the American Chemical Society, 127, 8796 (2005)

[25] A.N. Enyashin, N.I. Medvedeva, **Yu.E. Medvedeva**, and A.L.Ivanovskii, *Electronic structure and magnetic states of crystalline and fullerene-like forms of $NiCl_2$,* Physics of the Solid State (Fizika Tverdogo Tela), 47, 527 (2005)

[24] M.I. Bertoni, T.O. Mason, **J.E. Medvedeva**, A.J. Freeman, K.R. Poeppelmeier, B. Delley, *Tunable conductivity and conduction mechanism in an ultraviolet light activated electronic conductor,* Journal of Applied Physics, 97, 103713 (2005)

[23] **J.E. Medvedeva**, A.J. Freeman, X.Y. Cui, C. Stampfl, N. Newman, *Half-metallicity and efficient spin injection in AlN/GaN:Cr (0001) heterostructure,* Physical Review Letters, 94, 146602 (2005)

[22] **J.E. Medvedeva**, A.J. Freeman, *Combining high conductivity with complete optical transparency: A band-structure approach,* Europhysics Letters, 69, 583 (2005)

[21] J.J. Lee, **J.E. Medvedeva**, J.H. Song, Y. Cui, A.J. Freeman, J.B. Ketterson, *Ferromagnetism of Mn/Ge multilayers grown by molecular beam epitaxy,* Journal of Superconductivity, 18, 335 (2005)

[20] S. Jin, Y. Yang, **J.E. Medvedeva**, J.R. Ireland, A.W. Metz, J. Ni, C.R. Kannewurf, A.J. Freeman, T.J. Marks, *Dopant Ion Size and Electronic Structure Effects on Transparent Conducting Oxides. Sc-Doped CdO Thin Films Grown by MOCVD,* Journal of the American Chemical Society, 126, 13787 (2004)

[19] R. Saniz, **J.E. Medvedeva**, Lin-Hui Ye, T. Shishidou, A. J. Freeman, *Electronic structure properties and BCS superconductivity in beta-pyrochlore oxides: KOs_2O_6,* Physical Review B, 70, 100505(R) (2004)

[18] R.V. Shpanchenko, V.V. Chernaya, A.A. Tsirlin, P.S. Chizhov, D.E. Sklovsky, E.V. Antipov, E.P. Khlybov, V. Pomjakushin, A.M. Balagurov, **J.E. Medvedeva**, E.E. Kaul, C. Geibel, *Synthesis, structure, and properties of new perovskite $PbVO_3$,* Chemistry of Materials, 16, 3267 (2004)

[17] **J.E. Medvedeva**, A.J. Freeman, *Hopping versus bulk conductivity in transparent oxides: $12CaO{\cdot}7Al_2O_3$,* Applied Physical Letters, 85, 955 (2004)

[16] **J.E. Medvedeva**, A.J. Freeman, M.I. Bertoni, and T.O. Mason, *Electronic structure and light-induced conductivity in a transparent refractory oxide,* Physical Review Letters, 93, 016408 (2004)

[15] **J.E. Medvedeva**, M.K. Korotin, V.I. Anisimov, A.J.Freeman, *Orbital ordering in paramagnetic $LaMnO_3$ and $KCuF_3$,* Physical Review B, 65, 172413 (2002)

[14] **J.E. Medvedeva**, V.I. Anisimov, O.N. Mryasov, A.J. Freeman, *Role of Coulomb correlation on magnetic and transport properties of doped manganites: $La_{0.5}Sr_{0.5}MnO_3$ and $LaSr_2Mn_2O_7$,* Journal of Physics: Condens. Matter, 14, 4533 (2002)

[13] N.I.Medvedeva, **Yu.E.Medvedeva**, and A.L.Ivanovskii, *Electronic structure of ternary boron-containing phases $YCrB_4$, Y_2ReB_6 and MgC_2B_2,* Doklady Physical Chemistry (Doklady Akademii Nauk), 383 , 75-77 (2002)

[12] N.I. Medvedeva, A.L. Ivanovskii, **J.E. Medvedeva**, A.J.Freeman, and D.L. Novikov, *Electric field gradients in s-, p- and d-metal diborides and the effect of pressure on the band structure and T_c in MgB_2,* Physical Review B, 65, 052501 (2001)

[11] N.I. Medvedeva, **J.E. Medvedeva**, A.L. Ivanovskii, *Electronic structure of the superconducting MgB_2 and layered ternary phases: $MgB_{2-y}N_y$ and Mg_3BN_3, (in Russian)* Doklady Physical Chemistry (Doklady Akademii Nauk), 379, 168 (2001)

[10] N.I. Medvedeva, A.L. Ivanovskii, **J.E. Medvedeva**, and A.J.Freeman, *Electronic structure of superconducting MgB_2 and related binary and ternary borides,* Physical Review B, 64, 020502(R) (2001)

[9] S.V. Okatov, A.L. Ivanovskii, **J.E. Medvedeva**, and N.I. Medvedeva, *The electronic band structures of superconducting MgB_2 and related borides CaB_2, MgB_6 and CaB_6,* Physica Status Solidi B, 225, R3 (2001)

[8] N.I. Medvedeva, **J.E. Medvedeva**, A.L. Ivanovskii, V.G. Zubkov, A.J. Freeman, *Electronic structure of the superconducting MgB_2 and modeling related ternary systems, (in Russian)* Letters to JETP, 73, 336 (2001)

[7] **J.E. Medvedeva**, V.A. Anisimov, M.K. Korotin, O.N. Mryasov, A.J. Freeman, *Coulomb correlation and magnetic ordering in double-layered $LaSr_2Mn_2O_7$,* Journal of Magnetism and Magnetic Materials, 237, 47 (2001)

[6] **J.E. Medvedeva**, O.N. Mryasov, M.K. Korotin, V.A. Anisimov, and A.J. Freeman, *The effect of Coulomb interaction and magnetic ordering on the electronic structure of two hexagonal $YMnO_3$ phases,* J. Phys.: Condens. Matter, 12, 4947 (2000)

[5] A.L. Ivanovsky, N.I. Medvedeva, and **J.E. Medvedeva**, *First-principle investigations of stability and electronic properties of metal diborides: II. 4d-5d transition metal diborides, (in Russian)* Metallofisika, 21, 19 (1999)

[4] Ju. Zaharov, **J.E. Medvedeva**, A.E. Nikiforov, S.Ju. Shashkin, *Computer modeling of physical properties of ideal and doped fluorites, (in Russian)* Voprosy spektroskopii i spektrometrii, 80 (1998)

[3] A.L. Ivanovsky, N.I. Medvedeva, G.P. Shvejkin, **J.E. Medvedeva**, and A.E. Nikiforov, *First-principle investigations of stability and electronic properties of metal diborides: I. 3d-transition metal diborides, (in Russian)* Metallofisika, 20, 41 (1998)

[2] A.L. Ivanovsky, N.I. Medvedeva, and **J.E. Medvedeva**, *First-principle analysis of crystal structure stability of RuB_2, (in Russian)* Doklady Physical Chemistry (Doklady Akademii Nauk), 361, 642 (1998)

[1] A.L. Ivanovsky, N.I. Medvedeva, and **J.E. Medvedeva**, *Quantum-chemical analysis of the chemical stability and cohesive properties of hexagonal TiB_2, VB_2, ZrB_2 and NbB_2,* Mendeleev Communications, 4, 129 (1998)

D. Refereed conference papers

[6] A. Murat, and **J.E. Medvedeva**, *Native point defects in multicomponent transparent conducting oxides,* MRS Fall Meeting proceedings, Symposium R (2013)

[5] K. Limmer, and **J.E. Medvedeva**, *Effect of Nickel, Copper, and Chromium on Stacking Fault Energy in FCC iron,* AISTech proceedings (2013)

[4] S.N. Lekakh, V.L. Richards, **J. Medvedeva**, and J.M. Murphy, "Effect of Alloying Elements on Gray Iron Natural Aging. Part 1. Manganese", proceedings of the 115th Metalcasting Congress (April 5-8, 2011, Schaumburg, IL), American Foundry Society.

[3] M. McGrath, D. Van Aken, **J. Medvedeva**, V. Richards, and N. Medvedeva, "Mechanical Properties Dependence On Microstructures Of Hot Rolled 3rd Generation Advanced High Strength Steels", MS&T 10 Conference and Exhibition Proceedings.

[2] D.C. Van Aken, **J.E. Medvedeva**, M.C. McGrath, N.I. Medvedeva, and V.L. Richards, "Developing Lightweight Steels for the Transportation Industry", NSF CMMI Proceedings, NSF CMMI Engineering Research and Innovation conference 2009: Research and Education in a Flat World.

[1] N. Newman, S.Y. Wu, H.X. Liu, **J.E. Medvedeva**, Lin Gu, R.K. Singh, Z.G. Yu, I.L. Krainsky, S. Krishnamurthy, D.J. Smith, A.J. Freeman, M. van Schilfgaarde, *Recent progress towards the development of ferromagnetic nitride semiconductors for spintronic applications,* Physica Status Solidi A - Applications and Materials Science, 203, 2729-2737 (2006).

2. Invited Talks

A. National/International Meetings, Conferences, Workshops

[12] J.E. Medvedeva, *Structure and Properties of Amorphous Oxide Semiconductors: Modelling, Understanding, Designing*, 1st US-Japan Materials Genome Workshop, Tsukuba, Japan, June 2015

[11] J.E. Medvedeva, *First principles theory of transparent crystalline and amorphous oxide conductors and semiconductors,* CIMTEC 2014, 6th Forum on New Materials, Montecatiny Terme, Italy, June 2014

[10] J.E. Medvedeva, *Transparent Conductors: from basic principles to controllable properties,* American Physical Society (APS) March Meeting, Dallas, TX, 2011

[9] J.E. Medvedeva, *Conventional TCO and beyond: Band engineering approach*, MRS Fall Meeting, Symposium on Transparent Conductors and Semiconductors for Optoelectronics, Boston, MA, 2008

[8] J.E. Medvedeva, *Light-metal TCO: challenges and prospects*, 2nd International Symposium on Transparent Conducting Oxides, Hersonissos, Crete, Greece, 2008

[7] J.E. Medvedeva, *Complex Oxides as Novel Transparent Conductors,* Materials Science and Technology Conference (ACS, AIST, ASM, TMS), Detroit, Michigan, September 2007

[6] J.E. Medvedeva, *Future of Nanoporous TCO: What we have learned from C12A7,* International Symposium on C12A7 and Nanoporous Materials, Tokyo Institute of Technology, Yokohama, Japan, March 2007

[5] J.E. Medvedeva, *Designing novel materials from first principles: transparent conductors and beyond,* Toyota Central R&D Labs, Nagoya, Japan, March 2007

[4] J.E. Medvedeva, *Density Functional Theory: From Conventional to Novel Transparent Conductors,* 1st International Symposium on Transparent Conducting Oxides, Hersonissos, Crete, Greece, October 2006

[3] J.E. Medvedeva, *From conventional to nanoporous materials: first-principles approach,* 3rd Annual Missouri Nanotechnology Alliance Conference, UMC, Columbia, Missouri, October 2006

[2] J.E. Medvedeva, *Origin of Isotropic Transport Properties in Layered Transparent Conductors,* Workshop on Transparent and Conducting Oxides, Microsystems Technology Office of the Defence Advanced Research Projects Agency, Arlington, VA, September 2006

[1] J.E. Medvedeva, A.J. Freeman, M.I. Bertoni, T.O. Mason, *Electronic structure and light-induced conductivity in a transparent oxide,* 106th Annual Meeting and Exposition of the American Ceramic Society, Indianapolis, 2004

B. Invited Seminars, Colloquia, local Workshops

[13] J.E. Medvedeva, *Simulations and Modelling using HPS*, Honeywell-Missouri S&T Technical Exchange Day, Missouri S&T, August, 2015

[12] J.E. Medvedeva, *Long-range structural correlations in amorphous In-X-O from abinitio molecular dynamics,* New Opportunities in Oxides and Chalcogenides Workshop, Northwestern University, Evanston IL, October 2014

[11] J.E. Medvedeva, *Wide band-gap oxides,* US Army, Night Vision and Electronic Sensors Lab, Washington D.C., January 2014

[10] J.E. Medvedeva, *Steel Process/Product Modeling Research Overview: Atomistic Modeling of Materials Behavior,* Steel Manufacturing Research Center, Missouri S&T, October 2012

[9] J.E. Medvedeva, *Computational materials science: Modeling of materials behavior. Fe-based alloys,* Steel Founders Society of America, Materials Science and Engineering Department, Missouri S&T, March 2012

[8] J.E. Medvedeva, *Computational materials science: Designing Materials from first-principles,* Women in Physics (WoPHY'11), Nebraska MRSEC, University of Nebraska-Lincoln, Lincoln, NE, October 2011

[7] J.E. Medvedeva, *Role of local atomic structure on carrier generation in wide-bandgap oxides,* MRSEC Seminar Series, Materials Science and Engineering Department, Northwestern, Evanston, IL, March 2011

[6] J.E. Medvedeva, *Transparent Conductors: from basic principles to controllable properties,* Chemistry Department Seminar, Missouri S&T, January 2010

[5] J.E. Medvedeva, *Materials by Design: Transparent Conducting Oxides* Materials Science and Engineering Department Seminar, Missouri S&T, January 2010

[4] J.E. Medvedeva, *Transparent conducting oxides: role of carrier generation,* Physics Seminar, UMSL, St. Louis, November 2007

[3] J.E. Medvedeva, *Combining optical transparency with electrical conductivity: the advantages of complex oxides,* MRSEC Seminar, Northwestern University, Evanston, July 2007

[2] J.E. Medvedeva, *Density Functional Theory: From Conventional to Nano-porous Materials,* Department of the Materials Science and Engineering, UMR, Rolla, October 2005

[1] J.E. Medvedeva, *Density Functional Theory: From Conventional Bulk to Nano-porous Materials,* Department of Physics, Oregon State University, Corvallis, March 2005

Teaching at Missouri S&T:

- Special Topics in Condensed Matter Physics (graduate elective)
- Condensed Matter Physics (graduate elective)
- Elementary Solid State Physics (upper-undergraduate elective)
- Engineering Physics I: Mechanics (undergraduate)
- Engineering Physics II: Electricity and Magnetism (undergraduate)
- Physics Learning Center (PLC): The Learning Enhancement Across Disciplines (LEAD)

Advising:

- 1 postdoctoral fellow (now at Samsung R&D)
- 4 physics and 1 material science graduate students (Completed: 2 PhD and 1 MS with thesis. In progress: 1 PhD)
- Co-advisor of 5 UMSL physics graduate students (Completed: 2 PhD. In progress: 3 PhD)
- 5 undergraduate students (2 OURE students 2014-2015; 2 OURE students 2015-2016)

Department/University Service:

- Member of Dissertation/Thesis committee of 17 graduate physics/material science/nuclear engineering students (Completed: 9 PhD and 1 MS. In progress: 7 PhD)
- Mentor of a physics tenure-track faculty (2015-present)
- Senior Research Investigator, MRC (2014-present)
- Chair of Physics strategic planning committee (2014-present)
- Chair of Best-in-Class Physics Faculty search committee (2014-2015)
- Physics colloquium organizer (2014-2015)
- Computational Research Resources Task Force (2012-present)
- Honorary Degree Committee (2012-present)
- Physics Faculty search committee (2013-2014)
- Faculty Senate (2009-2011)
- Library and Learning Resources Committee (2007-2009)
- Physics Graduate Recruitment Committee (2005-present)
- Presentations on research opportunities for physics undergraduates (2005-present)

Professional Activities:

- Referee for physics/chemistry/material science research journals
- Proposal reviewer and panellist for National Science Foundation; Department of Energy; Missouri University Research Board; US Civilian Research and Development Foundation; Fonds National de la Recherche Luxembourg (5 panels and over 100 proposals reviewed)
- Member of the International Advisory Committee for the International Symposium on Transparent Conducting Materials
- Member of the International Board Committee for the Forum on New Materials at the International Conferences on Materials and Technologies (CIMTEC)
- Panellist and moderator at US-Japan Materials Genome Workshop, NIMS, Tsukuba, Japan, 2015
- Developer and organizer of a hands-on workshop *"Why Girls Like Diamonds"* at the annual conferences within "Expanding Your Horizons" program for 7th and 8th grade girls