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### CURRENT MANAGEMENT, LEADERSHIP, AND R&D ACTIVITIES

Manager and leader of the *Magnetic Materials* group of the Advanced Photon Source (APS), a team of 11 Ph.D. beamline scientists, 2.5 scientific associates, 1 administrative secretary, responsible for operations and R&D activities at four APS beamlines. The beamlines utilize synchrotron radiation in the soft (0.25-3 keV), hard (3-40 keV), and very high (100 keV) energy ranges to probe electronic structure, atomic and crystal structure, and electronic and atomic correlations across a broad range of length and time scales.

Science lead for POLAR, a \$12 M beamline selected by the APS upgrade (APS-U) project as one of eight featured beamlines to come online in 2024-2025.

Developer of resonant dichroic x-ray scattering, absorption, and imaging techniques and related instrumentation for measurements of electronic and magnetic properties of functional and quantum materials under simultaneous extreme conditions of pressure, temperature and magnetic field to explore emergent quantum states of matter in correlated electron systems.

### RESEARCH INTERESTS AND X-RAY TECHNIQUES

Electronic and magnetic materials; Quantum materials, Interplay between structure and magnetism; Emergent quantum states at high pressures; Interfacial magnetism in heterostructures; Local atomic structure and disorder; Quantum phase transitions; Correlated electron systems; Magnetic frustration; Superconductivity.

X-ray Absorption Spectroscopy including Linear/Circular Dichroism variants (XAS, XLD, XMCD) and X-ray Absorption Fine Structure (XAFS); X-ray Resonant Scattering including Resonant Magnetic Scattering, Resonant Magnetic Reflectivity, and Magnetic Diffraction Anomalous Fine Structure. Imaging techniques to map magnetic and chiral domains in real and reciprocal space.

### EMPLOYMENT/APPOINTMENTS

Senior Physicist	August 2020-Present
Fellow, Northwestern Argonne Institute of Science and Engineering (NAISE)	Jan 2019-Present
Adjunct Professor of Physics, Washington University in St. Louis	Feb 2015-Present
Group Leader, Magnetic Materials Group Argonne National Laboratory	Jan 2013-Present
Adjunct Associate Professor of Physics, Washington University in St. Louis	June 2010-Feb 2015



Former High School Interns current appointments:  
Lucas Vancieta, Oak Park River Forest (OPRF) High School, Caltech University

Current Graduate students:  
Eduardo de Toledo Poldi, Physics Dept. University of Illinois, Chicago

## LEADERSHIP IN RESEARCH AND DEVELOPMENT OF X-RAY TECHNIQUES

**Science Lead, APS-U POLAR beamline (2015-Present):** Led team of 15 scientists from U.S. academia and national labs in putting together the science case and related proposals for the new beamline POLAR as part of the APS-upgrade (APS-U) project. The new beamline will exploit the greatly enhanced brightness of the APS-U source, as well as novel concepts for production of polarized x-rays enabled by such source, to probe electronic correlations in quantum matter, particularly at extreme pressure conditions in the multi-Mbar range. Led writeup of functional requirements and preliminary design documents. Coordinated and steered efforts of POLAR core team towards final design of beamline layout including optics, enclosures, and instrumentation for end stations. Represents POLAR team at external reviews by DOE and technical and scientific advisory panels. Beamline is currently under construction, to become operational in 2024.

**X-ray absorption spectroscopy at high pressures (2007-Present):** Developed a high-pressure (1 Mbar), low-temperature (1.3 K), in-field (6.5 Tesla) capability for XANES/XMCD/XAFS studies of magnetic materials at extreme conditions. The instrument features a diamond-anvil cell with perforated anvils to minimize anvil's absorption, remote control of piston-motion via compression and decompression gas membranes allowing *in-situ* pressure control at low temperatures, and an online Ruby fluorescence system for *in-situ* pressure calibration at low temperatures. This effort, seeded by LDRD funding, nucleated a successful R&D and user program leading to over 50 publications since inception [*Phys. Rev. Lett.* 124, 067201 (2020); *Phys. Rev. Lett.* 121, 037004 (2018); *Phys. Rev. Lett.* 114, 077202 (2015); *Phys. Rev. Lett.* 109, 027204 (2012); *Phys. Rev. Lett.* 109, 026403 (2012); *Phys. Rev. Lett.* 100, 045508 (2008); *Phys. Rev. Lett.* 102, 057206 (2009)].

**X-ray studies of element- and site-specific magnetism in single crystals (2003-2008):** Exploited the symmetry properties of crystals in combination with resonant scattering of circularly polarized (CP) x-rays to develop a new method to obtain crystal-site-selective magnetic information in single crystals. This technique allowed measuring site-selective magnetization reversals in permanent magnetic materials providing an atomic look at the origins of magneto-crystalline anisotropy in best permanent magnet Nd<sub>2</sub>Fe<sub>14</sub>B [*Phys. Rev. Lett.* **95**, 217207 (2005); *Phys. Rev. B* **73**, 144416 (2006); *Phys. Rev. B* **74**, 104114 (2006); *Appl. Phys. Lett.* **93**, 052504 (2008)]. Developed a digital lock-in detection system for dichroic diffraction of CP x-rays (U.S. Patent 7,403,592 issued July 2008).

**X-ray studies of interfacial magnetism (1999-2014):** Combined x-ray resonant reflectivity with magnetic circular dichroism techniques to develop x-ray resonant magnetic reflectivity as a tool to measure and quantify the spatial extent and strength of magnetic exchange coupling at buried interfaces of layered structures. These techniques revealed the existence of induced Gd magnetization near the Gd/Fe interface and determined its spatial extent. Generalized computer codes were developed to retrieve magnetization density profiles from layered structures within the first Born approximation, and to obtain anomalous magnetic scattering factors from XMCD measurements [*Phys. Rev. Lett.* **87**, 207201 (2001); *Phys. Rev. B* **70**, 134420 (2004); *Appl. Phys. Lett.* **91**, 022503 (2007); *App. Phys. Lett.* **92**, 162502 (2008) *Phys. Rev. B* **79**, 134438 (2009), *Phys. Rev. B* **92**, 224433 (2015)].

**Polarized XAFS studies of local structure in high T<sub>c</sub> superconductors (1992-1999):** Exploited the polarization dependence of X-ray Absorption Fine Structure (XAFS) in anisotropic layered structures of high T<sub>c</sub> superconductors to measure local atomic arrangements at structural phase transitions and around dopant atoms with unprecedented accuracy. Developed methods for preparation of magnetically aligned powders for polarization-dependent fluorescence XAFS experiments. Developed XAFS data analysis tools leveraging multiple scattering effects to probe three-body correlations (bonding angles). These measurements revealed, among others, the partial order-disorder nature of the Sr-induced phase transition in La<sub>2-x</sub>Sr<sub>x</sub>CuO<sub>4</sub> [*Phys. Rev.*

*Lett.* **76**, 439 (1996)], the polaronic nature of hole carriers doped by Sr in  $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$  [*Phys. Rev. B (Rapid Communications)* **56**, R521 (1997)], the high spin non Jahn-Teller state of Ni in  $\text{La}_{2-x}\text{Sr}_x\text{Cu}_{1-y}\text{Ni}_y\text{O}_4$  [*Phys. Rev. B* **64**, 104510 (2001)] and the large local disorder in tilt angle of  $\text{CuO}_6$  octahedra present in  $\text{La}_{1.875}\text{Ba}_{0.125}\text{CuO}_4$  [*Phys. Rev. B* **61**, 7055 (2000)].

## RESEARCH NON-X-RAY TECHNIQUES

**Electron microscopy studies of local atomic structure of materials (1992-1995):** Contributed to the development of the EXELFS technique (Extended Energy Loss Fine Structure) as a structural tool with high spatial resolution ( $50\text{\AA}$  -  $1\mu\text{m}$ ) in the Transmission Electron Microscope (TEM). Main contributions include improvements in data analysis and quantifying the effect of electron radiation damage as a limitation to high spatial resolution [*Micron* **30**, 185-194 (1999), *Ultramicroscopy* **58** n.3-4 p.353 (1995)].

**Mössbauer-effect studies of impurities in metals (1989-1992):** Used Mössbauer spectroscopy on the  $^{119}\text{Sn}$  isotope to study local dynamics and electronic properties of Sn impurities in Ag, Pb and Au metal hosts. Unusually large dynamics of Sn atoms was found at high temperatures, providing new clues into the role of point defects on lowering the melting temperature of dilute binary alloys [*Phys. Rev. B* **47**, 14032 (1993), *J. Phys. Cond. Matt.* **10**, 8573 (1998)].

## COMPUTER EXPERTISE AND SOFTWARE DEVELOPMENTS

Experience in FORTRAN and C scientific programming. Experience with script language programming (PERL, C-shell) as well as UNIX and LINUX operating systems and a variety of software running on these platforms.

- Wrote a generalized code to retrieve magnetization density profiles in multilayers from fits of magnetic reflectivity data using the first Born approximation (1999-2001).
- Wrote a generalized Kramers-Krönig code to obtain accurate charge and magnetic anomalous scattering factors from XANES and XMCD measurements (2000-2001).
- Wrote a generalized code to simulate site-specific x-ray resonant dichroic diffraction of CP x-rays from crystals using ab-initio calculations of resonant scattering factors (2002-2004).
- Wrote a generalized code to calculate degree of circular polarization from Bragg-transmission phase retarding diamond crystals, PHARET (2000)
- Wrote a generalized code to correct X-ray Absorption Near Edge Structure (XANES) data for self-absorption effects in fluorescence experiments, FLUO (1998).
- Contributed to UWXAFS package software development (1992-1998).

## LANGUAGES

Fluent in English, Spanish and Hebrew

## AWARDS

2021 Outstanding Referee American Physical Society	2021
UChicago Argonne Board of Governors Distinguished Performance Award	2019
Fellow American Physical Society (Division of Condensed Matter Physics)	2015
Advanced Photon Source Users Organization Excellence in Beamline Science Award	2015
Argonne National Laboratory's Inventor Award	2009

## FUNDING

POLAR beamline, one of 8 featured beamlines of the APS-U project: \$12 M 2018-2024

Laboratory Directed Research and Development (LDRD) funding (\$1.422 M):

<i>Force-neutral fast polarization switching X-undulator for the POLAR beamline</i>	\$410,000	2023
<i>A Novel Gas-Filled Microchannel Plate (GF-MCP) X-ray Polarimetry Imager</i>	\$16,000	2017
	\$16,000	2016
<i>Tuning electronic structure at high pressures: towards novel materials discovery from x-ray science under extreme conditions</i>	\$157,000	2012
	\$260,000	2011
	\$117,000	2010
<i>An Integrated x-ray and neutron approach to magnetic depth-profiling in nanostructures</i>	\$60,000	2008
	\$110,000	2007
	\$80,000	2006
<i>Site-specific magnetism in crystals</i>	\$96,000	2005
	\$100,000	2004

## PATENTS

*Digital Lock-in detection of site-specific magnetism in magnetic materials* No. 7,403,592 2008

## SYNERGETIC ACTIVITIES AND COMMUNITY SERVICE

- Co-organizer, Focused Topic Sessions (DMP), APS March Meeting, Las Vegas, USA 2023
- Panelist, Neutrons for the Future Workshop (“Accompanying facilities”) 2023
- Panelist, NSF-MRI, Engineering, Geosciences, divisions 2023
- Argonne Mentoring Program 2022-Present
- Reviewer, Spring-8 Peer Review Panel Spectroscopy (S3) (Japan) Jul 2019-Jan 2021
- Member, Peer Review Panel 3, Diamond Light Source (UK) May 2020-Nov 2021
- International Advisory Committee International Conference on Strongly Correlated Electron Systems (SCES 2020) October 2019
- Chair, Scientific Advisory Board REXS 2019 (New York, USA) June 2019
- International Advisory Committee, AIRAPT 27<sup>th</sup> (Rio de Janeiro, Brazil) August 2019
- Associate Editor, Quantum Materials section, *Functional Materials* May 2019-Present
- International Advisory and Program Committee, XAFS17 (Krakow, Poland) July 2018
- Co-chair, Microsymposium “XAS at extreme conditions”, 24<sup>th</sup> IUCr Congress, Hyderabad, India August 2017
- Guest Editor, *High Pressure Research* journal (“Frontiers of high pressure XAS”) August 2016
- Editorial Board Member, *Scientific Reports*, a *Nature* Journal April 2013-present
- International Scientific Advisory Committee, REXS 2016 (Hamburg, Germany) June 2016
- International Advisory and Program Committee, XAFS16 (Karlsruhe, Germany) August 2015
- Panelist, NSF-DMR Condensed Matter Physics- Magnetism 2015, 2016, 2019
- Member, Scientific Software Audit and Advisory Panel, Diamond Light Source, UK Oct 2012
- Secretary/Treasurer of the International x-ray absorption society (IXAS) July 2012- July 2018
- Workshop Organizer, "Spectroscopy of Rare-earth Materials at Extreme Conditions: Structure, Magnetism, and Energy", ANL May 2012
- Local Organizing Committee, International School and Symposium on Multifunctional Molecule-based materials, ANL March 2011
- Organizer, 1<sup>st</sup> North American Core Shell Spectroscopy Conference (NACSSC) August 2010

- Member, Photon Sciences Programmatic and Operations Committee on Hiring and Promotions (POC-HP) 2010-2017
- Organizer and Chair, Edward A. Stern Symposium at NACSSC August 2010
- Neutron and x-ray scattering ANL summer school instructor (X-ray Dichroism) 2002-2023
- XAFS summer school instructor (“XAFS and other techniques”) 2005-2008
- Member General User Program spectroscopy panel APS/ANL (Chair 2007). 2006-2008
- Reviewer, Physics journals, DOE (SBIR, Early Career), SLAC proposals 1996-Present
- Organizer, Workshop on Novel Science with Polarized x-rays, ANL 2007
- Member, Advanced Photon Source Colloquium Committee 2004-2006

## PROFESSIONAL ASSOCIATIONS

Member of the American Physical Society  
 Member of the International XAFS Society

**SELECTED PUBLICATIONS** [221 total; WOS: 6593 citations, h-index=38; Google Scholar: 8743 citations; h-index=46, \* indicates first author and/or corresponding author (54)]

*Possible Quantum Paramagnetism in Compressed Sr<sub>2</sub>IrO<sub>4</sub>*, **D. Haskel\***, G. Fabbris, J.H. Kim, L. Veiga, J. Mardegan, C. Escanhoela, S. Chikara, V. Struzhkin, T. Senthil, B. J. Kim, G. Cao, J-W. Kim, *Physical Review Letters* 124, 067201 (2020).

*Pressure induced superconductivity in elemental Ytterbium metal*, J. Song, G. Fabbris, W. Bi, **D. Haskel**, and J.S. Schilling, *Physical Review Letters* 121, 037004 (2018)

*Hyperhoneycomb Iridate beta-Li<sub>2</sub>IrO<sub>3</sub> as a platform for Kitaev Magnetism*, T. Takayama, A. Kato, R. Dinnebier, J. Nuss, H. Kono, L. Veiga, G. Fabbris, **D. Haskel**, H. Takagi, *Physical Review Letters* 114, 077202 (2015)

*Pressure Tuning of the Spin-Orbit Coupled Ground State in Sr<sub>2</sub>IrO<sub>4</sub>*, **D. Haskel\***, G. Fabbris, Mikhail Zhernenkov, P. P. Kong, C. Q. Jin, G. Cao, and M. van Veenendaal, *Physical Review Letters* 109, 027204 (2012)

*Reentrant Valence Transition in EuO at High Pressures: Beyond the Bond-Valence Model* N. M. Souza-Neto\*, J. Zhao, E. E. Alp, G. Shen, S.V. Sinogeikin, G. Lapertot, and **D. Haskel\*** *Physical Review Letters* 109, 026403 (2012)

*Orbital magnetism and spin-orbit effects in the electronic structure of BaIrO<sub>3</sub>* Ma. A. Laguna-Marco\*, **D. Haskel\***, N. Souza-Neto, J. Lang, V. Krishnamurthy, S. Chikara, Gang Cao, M. van Veenendaal\*, *Physical Review Letters*, 105, 216407 (2010)

*Pressure induced electronic mixing and enhancement of ferromagnetic order in EuX(X=O,S,Se,Te) magnetic semiconductors* N. Souza-Neto\*, **D. Haskel\***, Y.C. Tseng, G. Lapertot, *Physical Review Letters* 102, 057206 (2009).

*Role of Ge in Bridging Ferromagnetism in the Giant Magnetocaloric Gd<sub>5</sub>(Si<sub>x</sub>Ge<sub>1-x</sub>)<sub>4</sub> Alloys* **D. Haskel\***, Y. B. Lee, B. Harmon, Z. Islam, J. Lang, G. Srajer, Y. Mudryk, K. A. Gschneidner, V. K. Pecharsky, *Physical Review Letters* 98, 247205 (2007).

*Atomic Origin of Magnetocrystalline anisotropy in Nd<sub>2</sub>Fe<sub>14</sub>B* **D. Haskel\***, J. Lang, Z. Islam, A. Cady, G. Srajer, M. van Veenendaal, P. Canfield, *Physical Review Letters* 95, 217207 (2005).

*Enhanced Interfacial Magnetic Coupling of Gd/Fe Multilayers* **D. Haskel\***, G. Srajer, J. Lang, J. Pollmann, C. Nelson, J. Jiang, S. Bader. *Physical Review Letters* 87, 207201 (2001).

*Dopant and temperature induced phase transitions in LaSrCuO by XAFS* **D. Haskel\***, E. A. Stern, D. G. Hinks, A. W. Mitchell, J. Jorgensen and J. Budnick. *Physical Review Letters* 76, 439 (1996).

#### **SELECTED PRESENTATIONS** (120 total, 80 invited)

(Invited) *Tuning Magnetism with Pressure in Honeycomb and Square lattice Iridates*  
March Meeting, American Physical Society, Chicago, USA (March 14-17, 2022)

(Invited) *Magnetism at High Pressure: Search for Quantum Spin Liquids in 5d oxides*  
Strongly Correlated Electron Systems (SCES 2020/2021), Brasilia, Brazil (September 30, 2021)

(Invited) *Manipulating exchange interactions and search for quantum spin liquids*  
Gordon Research Conference "Research at High Pressures", Holderness, NH (July 15-20, 2018)

(Invited) *Probing magnetism at high pressure with polarized x-ray resonant absorption and scattering techniques: Novel quantum magnetism in 5d oxides driven by strong spin-orbit interactions*  
The 26th International Conference on High Pressure Science and Technology (AIRAPT 26), Beijing, China (August 18-24, 2017)

(Invited) *Pressure-tuning of the spin-orbit coupled ground state of Sr<sub>2</sub>IrO<sub>4</sub>*  
March Meeting, American Physical Society, Baltimore, USA March 18-22 (2013)

(Invited) *X-ray absorption spectroscopy at high pressure*  
Seminar, Diamond Light Source, Oxfordshire, United Kingdom (October 2012)

(Invited) *Probing Spin-Orbit interactions in BaIrO<sub>3</sub> with x-ray absorption spectroscopy*  
Workshop on Physics driven by Spin-orbit coupling in TM compounds, IOP, CAS Beijing, China (2011)

(Invited) *Charge-Magnetic Interference hard x-ray resonant scattering studies of ferromagnetic crystals and thin films*, Resonant Elastic X-ray Scattering (REXS 2011) conference, Aussois, France (2011)

(Invited) *Squeezing Magnets- and what can we learn from it* ; Seminar, Department of Materials Physics, Universidad Complutense de Madrid, Madrid, Spain (March 2009)

(Invited) *Site-specific Magnetic Spectroscopy of Functional Materials*; 6<sup>th</sup> International Conference on Synchrotron Radiation in Materials Science (SRMS-6) Campinas, Brazil (July 2008)

(Invited) *The role of Ge in mediating FM interactions in Gd<sub>5</sub>Si<sub>x</sub>Ge<sub>1-x</sub> alloys*; Condensed Matter Physics Seminar, Instituto de Ciencia de Materiales de Aragon, University of Zaragoza, Zaragoza, Spain (March 2007)

(Invited) *Element- and site-specific study of the atomic origin of magnetic hardness in modern magnets*, Symposium on "Combined XAS and XRD techniques in Physics, Chemistry and Materials Science", XX Congress of the International Union of Crystallography (IUCR), Florence, Italy (August 2005)

(Invited) *Hard x-ray magnetic studies at the Advanced Photon Source*. Strategic meeting of users of x-ray absorption spectroscopy at ALBA, Sevilla, Spain (October 2004).

(Invited) *Element and site-specific magnetism: X-ray studies in the absorption and diffraction channels*. Physics Colloquium, University of Nebraska, NE, USA (January, 2004) .

(Invited) *Dopant Structural distortions in High T<sub>c</sub> superconductors: Active or Passive Role?* The 11<sup>th</sup> International XAFS conference (XAFS11), Ako, Japan (2000).

(Invited) *Role of Sr dopants in the inhomogeneous ground state of La(2-x)Sr(x)CuO(4)* Phase transitions and self-organization in electronic and molecular networks, Cambridge University, Cambridge, U.K. (2000).

## List of Publications

2023

1. *Momentum-independent magnetic excitation continuum in the honeycomb iridate H<sub>3</sub>LiIr<sub>2</sub>O<sub>6</sub>*, A. de la Torre, B. Zager, F. Bahrami, M. Upton, J. Kim, G. Fabbris, G.-H. Lee, W. Yang, D. Haskel, F. Tafti, K. W. Plumb, Nature Communications 14, 5018 (2023).
2. *Interplay between Kondo and magnetic interactions in Pr<sub>0.75</sub>Gd<sub>0.25</sub>ScGeH*, T. del Rose, R. Choudhary, Y. Mudryk, D. Haskel, A. Pathak, G. Bhaskar, J. Zaikina, D. Johnson, V. Pecharsky, Journal of Alloys and Compounds 966, 171351 (2023).
3. *Electronic structure of Co 3d states in the Kitaev material candidate honeycomb cobaltate Na<sub>3</sub>Co<sub>2</sub>SbO<sub>6</sub> probed with x-ray dichroism*, M. van Veenendaal\*, E. Poldi, L. Veiga, P. Bencok, G. Fabbris, R. Tartaglia, J. McChesney, J. Freeland, R. Hemley, H. Zheng, J. Mitchell, J-Q. Yan, **D. Haskel\***, Phys. Rev. B 107, 214443 (2023).
4. *Pressure-induced charge orders and their postulated coupling to magnetism in hexagonal multiferroic LuFe<sub>2</sub>O<sub>4</sub>*, F. Liu, Y. Hao, J. Ni, Y. Zhao, D. Zhang, G. Fabbris, D. Haskel, S. Cheng, X. Xu, L. Yin, H. Xiang, J. Zhao, X. Lu, W. Wang, J. Shen, W. Yang, npj Quantum Materials 8, 1 (2023).

2022

5. *Possibilities at the Polar beamline with APS-U*, J. Stempfer, S. Kearney, A. Khan, D. Capatina, R. Reininger, D. Shu, C. Wolford, M. Golebiowski, L. Rebuffi, X. Shi, T. Kolodziej, H. Xuang, Y. Shvyd'ko, Y. Chi, G. Fabbris, I. Kesgin, Y. Yvanyushenkov, E. Gluskin, **D. Haskel** Journal of Physics: Conference Series 2380, 012038 (2022)
6. *Competing spin-orbital singlet states in the 4d4 honeycomb ruthenate Ag<sub>3</sub>LiRu<sub>2</sub>O<sub>6</sub>*, T. Takayama, M. Blankenhorn, J. Bertinshaw, D. Haskel, N. Bogdanov, K. Kitagawa, A. Yaresko, A. Krajewska, S. Bette, G. McNally, A. Gibbs, Y. Matsumoto, D. Sari, I. Watanabe, G. Fabbris, W. Bi, T. Larkin, K. Rabinovich, A. Boris, H. Ishii, H. Yamaoka, T. Irifune, R. Bewley, C. Ridley, C. Bull, R. Dinnebier, B. Keimer, H. Takagi, Physical Review Research 4, 043079 (2022)
7. *Electronic ground state of two nonmagnetic pentavalent honeycomb iridates*, A. de la Torre, B. Zager, J.R. Chamorro, M.H. Upton, G. Fabbris, **D. Haskel**, D. Casa, T.M. McQueen, K.W. Plumb, Physical Review Materials 6, 084406 (2022)
8. *Low-temperature nanoscale heat transport in a gadolinium iron garnet heterostructure probed by ultrafast x-ray diffraction*, D. Sri Gyan, D. Mannix, D. Carbone, J. Sumpter, S. Geprags, M. Dietlein, R. Gross, A. Jurgilaitis, V-T Pham, H. Codert-Alteirac, J. Larsson, **D. Haskel**, J. Stempfer, P. Evans, Struct. Dyn. 9, 045101 (2022)
9. *Synthesis of the Candidate Topological Compound Ni<sub>3</sub>Pb<sub>2</sub>*, A. Tamerius, A. Altman, M. Waters, E. Riesel, C. Malliakas, M. Whitaker, T. Yu, G. Fabbris, Y. Meng, **D. Haskel**, Y. Wang, S. Jacobsen, J. Rondinelli, D. Freedman, J. Am. Chem. Soc. 144, 11943 (2022)
10. *Quasi-Two-Dimensional Anomalous Hall Mott Insulator of Topologically Engineered Jeff=1/2 Electrons*, J. Yang, H. Suwa, D. Meyers, H. Zhang, L. Horak, Z. Wang, G. Fabbris, Y. Choi, J. Karapetrova, J-W. Kim, **D Haskel**, P. Ryan, M. Dean, L. Hao, J. Liu, Physical Review X 12, 031015 (2022)
11. *Evidence for spin swapping in an antiferromagnet*, W. Lin, J. He, B. Ma, M. Matzelle, J. Xu, J. Freeland, Y. Choi, **D. Haskel**, B. Barbiellini, A. Bansil, G.A. Fiete, J. Zhou, C.L.Chien Nature Physics 18, 800 (2022)



12. *Pressure-tuning of the electronic and magnetic properties of EuPt<sub>2</sub>Si<sub>2</sub>*, R. D. dos Reis, L.S.I. Veiga, G. Fabbris, F. Garcia, **D. Haskel**, F.C.G. Gandra, N. M. Souza-Neto *Journal of Magnetism and Magnetic Materials* 560, 169619 (2022)
13. *Interpretation of Ir L-edge isotropic x-ray absorption spectra across the pressure-induced dimerization transition in hyperhoneycomb beta-Li<sub>2</sub>IrO<sub>3</sub>*, Michel van Veenendaal\* and **Daniel Haskel\***, *Physical Review B* 105, 214420 (2022)
14. *Functional properties of Yttrium Iron Garnett thin films on graphene-coated Gd<sub>3</sub>Ga<sub>5</sub>O<sub>12</sub> for remote epitaxial transfer*, S. Leontsev, P.J. Shah, H.S. Kum, J.L. McChesney, F.M. Rodolakis, M.van Veenendaal, M. Velez, R. Rao, **D. Haskel**, J. Kim, A.N. Reed, M.R. Page, *Journal of Magnetism and Magnetic Materials* 556,169440 (2022)
15. *Origins of magnetic memory and strong exchange bias bordering magnetic compensation in mixed-lanthanide systems*, T.J. Del Rose, Y. Mudryk, **D. Haskel**, A. K. Pathak, V.K. Pecharsky, *Physical Review Materials* 6, 044413 (2022)
16. *First demonstration of tuning between the Kitaev and Ising limits in a honeycomb lattice* F. Bahrami, X. Hu, Y. Du, O. Lebedev, C. Wang, H. Luetkens, G. Fabbris, M. Graf, **D. Haskel**, Y. Ran, F. Tafti, *Science Advances* 8, eabl5671 (2022)
17. *Magnetic damping in ferromagnetic/heavy-metal systems: The role of interfaces and the relation to proximity-induced magnetism*, C. Swindells,, H. Glowinski, Y. Choi, **D. Haskel**, P. Michalowski, T. Hase, F. Stobiecki, P. Kuswik, D. Atkinson, *Phys. Rev. B* 105, 094433 (2022)
18. *Probing the tunability of magnetism with external pressure in metastable Sr<sub>2</sub>NiIrO<sub>6</sub> double perovskite*, M. Laguna-Marco, E. Arias-Egido, V. Cuartero, J. Herrero-Albillos, P. Kayser, J. Alonso, G. Fabbris, **D. Haskel**, T. Irifune, *Phys. Rev. B* 105, 064421 (2022)
19. *The impact of structural distortions on the magnetism of double perovskites containing 5d<sup>1</sup> transition-metal ions*, V. da Cruz Pinha Barbosa, J. Xiong, P Minh Tran, M. McGuire, J. Yan, M. Warren, R. Valdes Aguilar, W. Zhang, M. Randeria, N. Trivedi, **D. Haskel**, P. Woodward, *Chemistry of Materials* 34, 1098 (2022)
20. *Ferroelectric incommensurate spin crystals*, D. Rusu, J. Peters, T. Hase, J. Gott, G. Nisbet, J. Stremper, **D. Haskel**, S. Seddon, R. Beanland, A. Sanchez, M. Alexe, *Nature* 602, 240 (2022)
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177. *Measurement of x-ray resonant magnetic scattering from induced Cu polarizations in exchanged-coupled Co/Cu multilayers* Y. Hayasaki, K. Ishiji, H. Hashizume, H. Hosoi, K. Homote, M. Kuribayashi, G. Srajer, J. Lang, **D. Haskel** *J. Phys.: Condens. Matter.* **16**, 1915 (2004).
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183. *Hard x-ray magnetic circular dichroism study of a surface-driven twisted state in Gd/Fe multilayers* **D. Haskel\***, Y. Choi, D.R. Lee, J. C. Lang, G. Srajer, J.S. Jiang, S.D. Bader *Journal of Applied Physics* **93**, 6507 (2003).

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192. *Magnetic Imaging of a buried SmCo layer in a spring magnet* J. Pollmann, G. Srajer, **D. Haskel**, J.C. Lang, J. Maser, J. S. Jiang and S. D. Bader *Journal of Applied Physics* **89**, 7165 (2001).

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195. *Role of Sr dopants in the inhomogeneous ground state of La<sub>2-x</sub>Sr<sub>x</sub>CuO<sub>4</sub>* **D. Haskel\***, E.A. Stern and F. Dogan in *Phase transitions and self-organization in electronic and molecular networks (J. C. Phillips and M. F. Thorpe, Editors)*, Kluwer Academic/Plenum Publishers, pp. 323-330 (2001)
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198. *Dopant induced enhancement of the Jahn-Teller effect in perovskite cuprates* V. Polinger, **D. Haskel** and EA Stern VIBRONIC INTERACTIONS: JAHN-TELLER EFFECT IN CRYSTALS AND MOLECULES BOOK Series: NATO SCIENCE SERIES, SERIES II: MATHEMATICS, PHYSICS AND CHEMISTRY Volume: 39 Pages: 215-219; SPIE volume 4499, p. 38 (2001).

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200. *XAFS study of the low-temperature tetragonal phase of La(2-x)Ba(x)CuO(4): Disorder, stripes and T<sub>c</sub> suppression at x=0.125* **D. Haskel\***, E. A. Stern, F. Dogan and A. Moodenbaugh *Phys. Rev. B* **61**, 7055 (2000).
201. *Where do the doped holes go in La(2-x)Sr(x)CuO(4)? A close look by XAFS* **D. Haskel\***, V. Polinger and E. A. Stern in *High Temperature Superconductivity*, AIP Conference Proceedings **483**, 241 (1999) .
202. *Towards nanoscale EXELFS analysis: limitation due to radiation damage* **D. Haskel\***, M. Sarikaya, M. Qian and E. A. Stern *Micron* **30**, 185-194 (1999).
203. *Structural disorder and the origin of high T<sub>c</sub> suppression in La(1.875)Ba(0.125)CuO(4)* **D. Haskel\***, E. A. Stern, F. Dogan and A. Moodenbaugh *Journal of Synchrotron Radiation* **6**, 755 (1999).
204. *Electronic states of doped holes in La(2-x)Sr(x)CuO(4): a unique application of XAFS* E. A. Stern, V. Polinger and **D. Haskel** *Journal of Synchrotron Radiation* **6**, 373 (1999).
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206. *Comment on "Tilting of the CuO<sub>6</sub> octahedra in LaEuSrCuO as seen by <sup>151</sup>Eu Mossbauer spectroscopy* **D. Haskel\***, E. A. Stern and H. Shechter *Phys. Rev. B* **57**, 8034 (1998).
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208. *Anomalous concentration dependence of the <sup>119</sup>Sn Mossbauer isomer shift of Ag-Sn alloys* H. Shechter, **D. Haskel\***, E. A. Stern and Y. Yacoby *J. Phys.:Condens. Matter* **10**, 8573 (1998).
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210. *Altered Sr atomic environment in La<sub>{2-x}</sub>Sr<sub>{x}</sub>CuO<sub>{4}</sub>* **D. Haskel\*** and E. A. Stern *J. Phys IV FRANCE* **7**, C2-1177 (1997).
211. *Altered Sr environment in LaSrCuO* **D. Haskel\***, E. A. Stern, D. G. Hinks, A. W. Mitchell and J. Jorgensen *Phys. Rev. B (Rapid Communications)* **56**, R521 (1997).
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213. *Dopant and temperature induced phase transitions in LaSrCuO* **D. Haskel\***, E. A. Stern, D. G. Hinks, A. W. Mitchell, J. Jorgensen and J. Budnick *Phys. Rev. Lett.* **76**, 439 (1996).

214. *Radiation Damage and Spatial Resolution in the EXELFS of Inorganic Materials* (Postscript, 55K) **D. Haskel\***, M. Sarikaya, M. Qian and E. A. Stern *Microscopy and Microanalysis '96*, p. 558 (1996).
215. *Are Nanophase Grain Boundaries Anomalous ?* E. A. Stern, R. W. Siegel, M. Newville, P. G. Sanders and **D. Haskel** *Phys. Rev. Lett.* **75**, 3874 (1995).
216. *EXELFS as a tool for quantifying phase distributions in materials* **D. Haskel\***, M. Sarikaya, M. Qian and E. A. Stern *Ultramicroscopy*, **58** n.3-4 p.353 (1995).
217. *Single and multiple scattering XAFS in BaZrO<sub>3</sub>: a comparison between theory and experiment* **D. Haskel\***, B. Ravel, M. Newville and E. A. Stern *Physica B* **208&209**, 151 (1995).
218. *Analysis of multiple-scattering XAFS data using theoretical standards* M. Newville, B. Ravel, **D. Haskel**, J. J. Rehr, E. A. Stern and Y. Yacoby *Physica B* **208&209**, 154 (1995).
219. *The UWXAFS analysis package: philosophy and details* E. A. Stern, M. Newville, B. Ravel, Y. Yacoby and **D. Haskel** *Physica B* **208&209**, 117 (1995).
220. *Anomalous temperature behavior of Sn impurities* **D. Haskel**, H. Shechter, E. A. Stern, M. Newville and Y. Yacoby *Phys. Rev. B* **47**, 14032 (1993).
221. *Anomalous temperature behavior of impurities in Lead and Silver Hosts* M. Newville, E. A. Stern, **D. Haskel**, H. Shechter and Y. Yacoby *Jpn. J. Appl. Phys.* **32**, 628 (1993).

## LIST OF ORAL PRESENTATIONS

1. (Invited) *XAFS and other techniques*  
EXAFS50 Symposium, Brookhaven National Laboratory (November 1-2, 2023)
2. (Invited) *Magnetic Scattering and Spectroscopy at High Pressures at APS and APS-U*  
MS&T23 Symposium Emergent Materials Under Extremes and Decisive In-Situ Characterizations, Ohio, USA (October 2, 2023)
3. (Invited) *Magnetism at High Pressures: Search for Quantum Spin Liquids in 5d Oxides*  
American Crystallographic Association ACA 2022, Portland, Oregon, USA (July 29-August 3, 2022)
4. (Invited) *Magnetism at High Pressures: Search for Quantum Spin Liquids in 5d Oxides*  
XAFS2022 International XAFS conference, Sydney, Australia (July 10-15, 2022)
5. (Invited) *X-ray Magnetic Circular Dichroism*  
International School of Crystallography, 56th Course, Crystallography under extreme conditions: the future is bright and very compressed, ERICE, Italy (June 3-11, 2022)
6. (Invited) *Mossbauer Spectroscopy*  
International School of Crystallography, 56th Course, Crystallography under extreme conditions: the future is bright and very compressed, ERICE, Italy (June 3-11, 2022)
7. (Invited) *Tuning Magnetism with Pressure in Honeycomb and Square lattice Iridates*  
March Meeting, American Physical Society, Chicago, USA (March 14-17, 2022)
8. (Invited) *Magnetism at High Pressure: Search for Quantum Spin Liquids in 5d oxides*  
Strongly Correlated Electron Systems (SCES 2020/2021), Brasilia, Brazil (September 30, 2021)
9. (Contributed Talk) *Condensed Matter Physics*  
Triennial DOE Review of the Advanced Photon Source (September 7, 2021)
10. (Invited) *Search for Quantum Spin Liquids in 5d oxides*  
XAS Journal Club Seminar Series, Seattle, USA (June 10, 2021)
11. (Invited) *Magnetism at High Pressures: Search for Quantum Spin Liquids in 5d oxides*  
Rutgers Condensed Matter Webinar, New Jersey, USA (February 9, 2021)
12. (Invited) *Magnetism at high pressures and search for quantum spin liquids*  
Capital/DOE Alliance Center (CDAC) Webinar, Illinois, USA (August 19, 2020)
13. (Invited) *Magnetic scattering and spectroscopy at high pressures at APS and APS-U*, EBS Workshop “X-ray spectroscopy of Magnetic Materials”, ESRF, Grenoble France (October 7-9, 2019).
14. (Invited) *Magnetic scattering and spectroscopy at high pressures at APS and APS-U*, PRESSYNC Workshop “Synchrotron Techniques Under High Pressure”, CNPEM, Campinas, Brazil (July 31-August 2, 2019).

15. (Contributed) *APS-U POLAR beamline*, Experimental Scientific Advisory Committee Review of APS-U beamlines, Argonne IL (May 20, 2019).
16. (Contributed) *XAS Branching ratios and glitch-free XAFS with nano-polycrystalline diamond anvils: quantum spin liquids versus dimerized phases in honeycomb iridates*, Spectroscopy Special Interest Group, Argonne IL (February 2, 2019).
17. (Contributed) *Magnetic scattering and spectroscopy at high pressures at APS and APS-U*, Scientific Advisory Committee meeting, Argonne IL (November 8, 2018)
18. (Contributed) *APS-U POLAR Beamline*, DOE CD-2 Review of the APS-U Project, Argonne IL (October 10-12, 2018)
19. (Contributed) *Opportunities for polarization-dependent spectroscopy and scattering at APS-U*, Workshop “Discovery, synthesis and development of emergent materials and the role of APS-U”, Argonne IL (September 27-28, 2018).
20. (Invited Talk) *X-ray resonant probes of magnetism at high pressures: towards realization of novel quantum spin liquids in 5d oxides*, Condensed Matter Physics Seminar, U. Colorado Boulder (September 6, 2018)
21. (Contributed) *APS-U POLAR beamline*, Director review, CD-2 APS-U project, Argonne IL (August 22, 2018).
22. (Contributed) *POLAR: Polarization Modulation Spectroscopy*, APS-U technical review, Argonne IL (August 15, 2018).
23. (Contributed) *Edward A. Stern Memorial Plenary Session*, The 17th International XAFS Conference, Krakow, Poland (July 27, 2018)
24. (Invited Talk) *X-ray resonant probes of magnetism at high pressures: towards realization of novel quantum spin liquids in 5d oxides*, The 17th International XAFS Conference, Krakow, Poland (July 22-27, 2018)
25. (Invited Talk) *Opportunities in polarization-dependent spectroscopy at APS-U*, The 17th International XAFS Conference, Workshop "Advances in XAFS Experimental Techniques: Bridging the Light Source Generations", Krakow, Poland (July 21, 2018)
26. (Invited Talk) *Manipulating exchange interactions and search for quantum spin liquids*, Gordon Research Conference "Research at High Pressures", Holderness, NH (July 15-20, 2018)
27. (Contributed) *Opportunities for x-ray polarization control at APS-U*, APS-U Forum, Advanced Photon Source, Argonne (April 12, 2018)
28. (Invited Talk) *Probing Magnetism at High Pressure with Polarized X-rays: Beyond Ferromagnets*, HPCAT Workshop on Probing Materials under Extreme Conditions using Synchrotron Radiation, Argonne, IL (October 30-31, 2017)
29. (Contributed) *Magnetic scattering and spectroscopy*, Mini Workshop "Helical Superconducting Undulator at 7ID: Planning first experiments", Argonne, IL (September 18, 2017)
30. (Invited Talk) *Probing magnetism at high pressure with polarized x-ray resonant absorption and scattering techniques: Novel quantum magnetism in 5d oxides driven by strong spin-orbit interactions*, The 26th International Conference on High Pressure Science and Technology (AIRAPT 26), Beijing, China (August 18-24, 2017)
31. (Contributed) *POLAR: Polarization Modulation Spectroscopy*, Experimental Scientific Advisory Committee Review of APS Upgrade beamlines, Argonne, IL (July 19-21, 2017)
32. (Invited Talk) *Adventures with 5d orbitals at high pressure*, MRS Spring Meeting Symposium "Emergent Materials Properties and Phase Transitions under Pressure", Phoenix, Arizona (April 18-20, 2017)
33. (Invited Talk) *Adventures with 5d orbitals at high pressure*, Seminar, High Pressure Science and Engineering Center, Physics Department, University of Nevada Las Vegas (January 18, 2017)
34. (Invited) *Adventures with 5d orbitals at high pressure*, XV Brazil MRS Meeting, Symposium “Materials Science at High Pressure Conditions”, Campinas, Brazil (September 2016)
35. (Invited) *Polarization modulation spectroscopy: Electronic Matter under extreme conditions*, Workshop “ Overview of APS upgrade beamline proposals”, APS/CNM Users Meeting, Argonne IL, USA (May 2016)
36. (Contributed) *Frustration in square lattice of Iridium  $J_{eff}=1/2$  moments at high pressure*, March Meeting of the American Physical Society, Baltimore, USA (March 2016).

37. (Invited) *Magnetism at high pressure probed with x-ray resonant absorption and scattering techniques*, Condensed Matter Physics Seminar, University of Missouri, Columbia Mo (September 16, 2015).
38. (Invited) *Magnetism at high pressure probed with x-ray resonant absorption and scattering techniques*, Joint AIRAPT-25 and EHPRG-53, Madrid, Spain (August 2015).
39. (Invited) *X-rays and Magnetism- Part I and Part II (2 lectures)*, SyncLight 2015, Sao Paulo School of Advanced Sciences on recent developments in Synchrotron radiation, Campinas, Sao Paulo, Brazil (July 2015)
40. (Invited) *Frustration in AFM square lattice of  $J_{eff}=1/2$  moments at high pressure*, Competing interactions and colossal responses in transition metal oxides, Telluride, Colorado (June 8-12, 2015).
41. (Invited) *Frustration in AFM square lattice of  $J_{eff}=1/2$  moments at high pressure*, Enhanced Functionalities in 4d and 5d transition metal compounds from large spin-orbit coupling, Telluride, Colorado (June 14-18, 2015).
42. (Invited) *Possible quantum spin liquid state in square lattice of  $J_{eff}=1/2$  moments at high pressure*, Spin orbit coupling and magnetism in correlated transition metal oxides workshop, Ohio State University (May 4-7, 2015).
43. (Invited) *XAFS and other techniques*. XAFS14: a short course on methods and applications of XAFS (Nov 13-15, 2014).
44. (Invited) *X-ray spectroscopy and high pressure tuning of the S-O coupled ground state of Iridate (5d) oxides*, Condensed Matter Physics Seminar, University of Notre Dame (October 9, 2014).
45. (Invited) *Recent progress in high pressure studies of magnetism using polarized x-ray techniques*, 2014 Annual Users Meeting, Argonne National Laboratory (May 14, 2014)
46. (Invited) *Magnetism at High Pressures*, Colloquium, Materials Science Division, Argonne National Laboratory (May 8, 2014)
47. (Invited) *High pressure studies of magnetism using polarized x-ray techniques: Present and Future*, Workshop Extreme Conditions Experiments for today and at Sirius, LNLS/CNPEM, March 13-14, 2014 (Campinas, Brazil)
48. (Invited) *X-ray spectroscopy and high-pressure tuning of the spin-orbit coupled ground state of Iridate oxides*, Condensed Matter Seminar, Department of Physics, Ohio State University, October 10, 2013 (Ohio, USA)
49. (Invited) *Tuning the Spin-orbit coupled ground state of Sr2IrO4 with Pressure*, Workshop on Opportunities to study magnetism and related phenomena in 4d and 5d systems, July 22-24, 2013 (ORNL, TN, USA)
50. (Invited) *Instrumentation for high pressure studies of magnetism using polarized x-ray techniques*, "High Pressure" satellite workshop to Synchrotron radiation instrumentation (SRI2013), June 17, 2013 (Gaithersburg, MD USA)
51. (Invited) *X-ray spectroscopy and high-pressure tuning of the S-O coupled ground state of iridate (5d) oxides*, Condensed matter and biological Physics Seminar, Washington University in St. Louis, April 29, 2013 (St. Louis, USA)
52. (Invited) *Tuning the spin-orbit coupled ground state of Iridates with pressure*, March meeting American Physical Society, March 18-22, 2013 (Baltimore, USA)
53. (Contributed) *Pressure tuning of the spin-orbit coupled ground state of Sr2IrO4*, 12<sup>th</sup> Joint MMM-Intermag Conference, Jan 14-18, 2013 (Chicago, USA)
54. (Contributed) *DOE CD-2 Review of the APS Upgrade*, APS, ANL (December 5, 2012)
55. (Invited) *X-ray absorption spectroscopy at high pressures*, Diamond Light Source, Oxfordshire, United Kingdom (October 12, 2012).
56. (Invited) *Electronic ground state properties of Iridate oxides from x-ray absorption spectroscopy*, Kentucky Condensed Matter Physics Symposium: The Iridates, Lexington KY (April 28-29, 2012).
57. (Contributed) *Electronic ground state properties of Iridate oxides from x-ray absorption spectroscopy*, March Meeting American Physical Society, Boston MA (Feb 27-29, 2012).
58. (Invited) *Magnetism at High Pressures* DOE/BES Triennial review of the Advanced Photon Source, Argonne IL (September 12-15, 2011)
59. (Invited) *Magnetism at High Pressures*, University of Chicago review of APS Science (July 27-29, 2011)

60. (Invited) *Probing Spin-Orbit interactions in BaIrO<sub>3</sub> with x-ray absorption spectroscopy* Workshop on Physics driven by Spin-orbit coupling in TM compounds, IOP, CAS Beijing, China (June20-June22 2011)
61. (Invited) *Charge-Magnetic Interference hard x-ray resonant scattering studies of ferromagnetic crystals and thin films* Resonant Elastic X-ray Scattering (REXS 2011) conference, Aussois, France (June13-June18 2011)
62. (Invited) *Interplay between structure and magnetism in Gd<sub>5</sub>(SixGe1-x)4 alloys* Symposium on Magnetic Materials for Energy applications, TMS Annual Meeting, San Diego, CA (February 27-March 3 2011)
63. (Contributed) *Magnetism at High Pressures* 1st North American Core Shell Spectroscopy Conference (NACSSC), Denver Colorado (August 2010)
64. (Invited) *Probing Magnetism with X-rays: New tools, New insights*, Condensed Matter Physics Seminar, Washington University St. Louis (April 2010).
65. (Contributed) *Coexistence of weak ferromagnetism and superconductivity in Ru-1222* March Meeting of the American Physical Society, Portland Oregon (March 2010)
66. (Contributed) *Coexistence of weak-ferromagnetism and superconductivity in RuSR<sub>2</sub>Eu<sub>1.5</sub>Ce<sub>0.5</sub>Cu<sub>2</sub>O<sub>10</sub>*, 11<sup>th</sup> Joint MMM-Intermag conference, Washington DC (January 2010)
67. (Invited talk) *Complex oxide magnetism at high pressures* 2009 Villa Conference on Complex Oxide Heterostructures (VC-COH), St. Thomas, USVI (September 2009)
68. (Invited talk) *X-ray vision of the inner-workings of functional magnetic materials* Magnetism Conference 2009, Chicago, Illinois USA (April 2009)
69. (Invited talk) *Squeezing Magnets- and what can we learn from it* Physics Colloquium, Northern Illinois University, Illinois, USA (April 2009)
70. (Invited talk) *Squeezing Magnets- and what can we learn from it* Seminar, Department of Materials Physics, Universidad Complutense de Madrid, Madrid, Spain (March 2009)
71. (Invited talk) *Magnetism at High Pressures* Energy Dispersive X-ray Absorption Spectroscopy: Scientific Opportunities and Technical Challenges, ESRF, Grenoble, France (February 2009)
72. (Invited talk) *High-pressure XMCD at the Advanced Photon Source* Workshop in Advances in X-ray absorption spectroscopy under high pressures, 46th EHPRG- European High Pressure Research Group conference, Valencia, Spain (September 2008)
73. (Invited talk) *XAFS and other techniques* XAFS Summer School, Argonne National Laboratory, Argonne IL (August 2008)
74. (Invited) *Site-specific Magnetic Spectroscopy of Functional Materials*, SRMS-6: 6th International Conference on Synchrotron Radiation in Materials Science, Campinas, Brazil (July 2008).
75. (Invited) *High pressure studies of Magnetism using XMCD: the case of giant magnetocaloric material GdSiGe*, 2nd Workshop on Novel Electronic Materials, Lexington Kentucky, USA (May 2008).
76. (Invited) *High pressure studies of magnetism at the Advanced Photon Source*, "In Situ Experiments Under Extreme Conditions Utilizing Synchrotron Radiation", 18th LNLS annual users meeting (RAU) Campinas, Brazil, (February 2008).
77. (Invited) *Magnetic Spectroscopy at High Pressures using XMCD*, International Workshop on Synchrotron High Pressure Mineral Physics and Materials Science, Argonne National Laboratory (December 2007).
78. (Invited) *Magnetic Spectroscopy of Functional Materials*, University of Chicago Review of APS Science, Argonne National Laboratory (September 2007).
79. (Invited) *Magnetic Spectroscopy of Functional Materials*, Scientific Advisory Committee Review of XOR Science, Argonne National Laboratory (September 2007).
80. (Invited) *The role of Ge in mediating FM interactions in Gd<sub>5</sub>SixGe1-x alloys*, Condensed Matter Physics Seminar, Physics Department, Instituto de Ciencia de Materiales de Aragon University of Zaragoza, Zaragoza Spain (March 2007).
81. (Invited) *X-ray studies of the role of Ge in mediating Ferromagnetism in Gd<sub>5</sub>Si<sub>2</sub>Ge<sub>2</sub>*, Physics Seminar, Instituto de Magnetismo Aplicado, Universidad Complutense de Madrid. Madrid Spain (February 2007).



82. (Contributed) *Role of Ge in bridging ferromagnetism in giant magnetocaloric Gd<sub>5</sub>(Ge<sub>1-x</sub>Si<sub>x</sub>)<sub>4</sub>*, 10th Joint MMM/Intermag conference, Baltimore, MD, USA (January 2007).
83. (Invited) *New insights into Permanent Magnets*, 53rd Midwest Solid State Conference, Kansas City, USA (October 2006).
84. (Contributed) *Interplay between structure and magnetism in magnetocaloric material GdSiGe*, Fifth International conference on Synchrotron Radiation in Materials Science (SRMS-5), Chicago, USA (August 2006).
85. (Contributed) *Dichroic resonant diffraction of circularly polarized x-rays: a route to element- and site-specific magnetism*, The 13th International XAFS Conference, XAFS XIII, Stanford University, USA (July 2006).
86. (Invited) *Shedding (x-ray) light into the inner-workings of complex magnetic materials*, Condensed Matter Seminar, Physics Department, University of Notre Dame, Indiana, USA (May 2006).
87. (Contributed) *A new setup for HP-XMCD studies of magnetism at sector 4: First results*, High-Pressure special interest group meeting, Advanced Photon Source, Argonne (April 2006).
88. (Contributed) *Insights into Permanent Magnets*, Advanced Photon Source Operations Monthly Meeting, Argonne, Illinois (December 2005)
89. (Invited) *Inhomogeneous Magnetic States in Gd/Fe and SmCo/Fe Nanolayers*, AVS 52nd International Symposium, Magnetic Nanostructures, surfaces and Interfaces, Boston, USA (November 2005).
90. (Invited) *Element- and site-specific study of the atomic origin of magnetic hardness in modern magnets*, Symposium on "Combined XAS and XRD techniques in Physics, Chemistry and Materials Science", XX Congress of the International Union of Crystallography (IUCR), Florence, Italy (August 2005).
91. (Invited) *XAFS and other techniques*, Advanced Photon Source XAFS Summer School 2005, Argonne, IL, USA (July 2005).
92. (Invited) *XMCD studies of inhomogeneous magnetic states*, Nanomagnetism: Materials and Probes; Workshop at NSLS 2005 annual user's meeting, Brookhaven, Upton, NY, USA (May 2005).
93. (Contributed) *X-ray structural and magnetic studies of the magnetic-martensitic transition in Gd<sub>5</sub>Si<sub>0.5</sub>Ge<sub>3.5</sub>*, March meeting of the American Physical Society, Los Angeles, CA, USA (March 2005).
94. (Invited) *Understanding our best permanent magnets: X-ray studies of element- and site-specific magnetism in Nd<sub>2</sub>Fe<sub>14</sub>B crystals* Department of Chemistry, University of the Republic of Uruguay, Montevideo, Uruguay (December 2004) .
95. (Invited) *Hard x-ray magnetic studies at the Advanced Photon Source Strategic meeting of users of x-ray absorption spectroscopy at ALBA*, Sevilla, Spain (October 2004).
96. (Invited) *Beyond element specific magnetism: Magnetic spectroscopy in the diffraction channel* Workshop on Nanomagnetism using X-ray techniques, Lake Geneva, WI (August, 2004).
97. (Invited) *Synchrotron radiation studies of magnetism in layered nanostructures* Nanomagnetism Workshop, Center for Nanoscale Materials first users meeting, Argonne, IL (May, 2004).
98. (Invited) *Site-specific magnetism and the spin-reorientation transition in Nd<sub>2</sub>Fe<sub>14</sub>B permanent magnet* Workshop on interplay of Magnetism and Structure in Functional Materials, Benasque Center for Science, Spain (February, 2004).
99. (Invited) *Element and site-specific magnetism: X-ray studies in the absorption and diffraction channels* Physics Colloquium, University of Nebraska, NE (January, 2004).
100. (Contributed) *Element and site-specific magnetism in Nd<sub>2</sub>Fe<sub>14</sub>B single crystal* 9th Joint MMM/INTERMAG Conference, Anaheim, CA (January, 2004).
101. (Contributed) *Beyond element-specific magnetism in Nd<sub>2</sub>Fe<sub>14</sub>B permanent magnet* DOE-CESP Nanocomposite Magnetic Materials Annual Workshop, Asilomar, CA (October, 2003).
102. (Contributed) *Beyond element specific magnetism: Anomalous diffraction using circularly polarized x-rays* 12th International conference on x-ray absorption fine structure, Malmo, Sweden (June, 2003)
103. (Invited) *X-ray studies of Magnetism: Element Specificity and Beyond* BNL/NSLS Symposium Series, Long Island, New York (2003).

- 104.(Invited) *X-ray studies of Magnetism: Element Specificity and Beyond* Physics Colloquium, Yeshiva University, New York (2003).
- 105.(Contributed) *Hard x-rays MCD studies of magnetic phase transitions- with a twist* 47th Conference on Magnetism and Magnetic Materials, MMM02, Tampa, FL, USA (2002).
- 106.(Invited) *Using Circularly Polarized X-rays to study Layered Magnetic Nanostructures* Symposium on Impact of Scattering on Nanoscience and Technology, 2002 ACA Annual Meeting, San Antonio, TX, USA (2002).
- 107.(Contributed) *Hard x-ray MCD studies of a surface-driven twisted state in artificial Gd/Fe ferrimagnetic multilayers* DOE-CESP Annual Workshop on Nanocomposite Magnetic Materials, Stony Brook, NY, USA (2002).
- 108.(Contributed) *Local structure of amorphous V[TCNE]<sub>x</sub> molecular magnet* March meeting of the American Physical Society, Indianapolis, IN, USA (2002).
- 109.(Invited) *XAFS in Anisotropic Structures: Exploiting angular dependence for better modeling* Workshop on Advanced Methods and Tricks of EXAFS Data Modeling, 2001 NSLS Annual Users' Meeting, NSLS, Brookhaven, USA (2001).
- 110.(Invited) *Dopant Structural distortions in High T<sub>c</sub> superconductors: Active or Passive Role?* The 11th International XAFS conference (XAFS11), Aiko, Japan (2000).
- 111.(Contributed) *Charge Inhomogeneities, T<sub>c</sub> suppression and M-I transition in Ni-doped La(2-x)Sr(x)Cu(1-y)Ni(y)O(4)* International Symposium on Physics in Lattice Distortions (LLD2K), Tsukuba, Japan (2000) .
- 112.(Invited) *Role of Sr dopants in the inhomogeneous ground state of La(2-x)Sr(x)CuO(4)* Phase transitions and self organization in electronic and molecular networks, Cambridge University, Cambridge U.K. (2000).
- 113.(Contributed) *Where do the doped holes go in LaSrCuO? A close look by XAFS* High Temperature Superconductivity (HTS99), Coral Gables, Florida USA (1999).
- 114.(Contributed) *Structural disorder and the origin of high T<sub>c</sub> suppression in LaBaCuO* X International XAFS conference, Chicago USA (1998).
- 115.(Contributed) *Towards atomic resolution EXELFS?* M.Qian, D.Haskel, E.A.Stern, M.Sarikaya Towards Atomic resolution analysis (TARA98), Port Ludlow, Washington USA (1998).
- 116.(Contributed) *Disorder LTT ground state in LaBaCuO* March Meeting of the American Physical Society, Los Angeles, CA USA (1998) .
- 117.(Contributed) *Altered Sr environment in LaSrCuO* Gordon Research conference on High T<sub>c</sub> superconductivity, Ventura, CA USA (1997)
- 118.(Contributed) *Development of EXELFS for nanoscale atomic structure determination* IX International XAFS conference, Grenoble, France (1996).
- 119.(Contributed) *Ultimate spatial resolution in the EXELFS of inorganic materials* D.Haskel, M.Qian, M.Sarikaya, E.A.Stern Microscopy Society of America (MSA) Annual meeting, Minneapolis, MN USA (1996).
- 120.(Contributed) *XAFS studies of phase transitions in LaSrCuO* March meeting of the American Physical Society, San Jose, CA USA (1995).