

Reviewed publications

Names of graduate students are underlined.

1. *X-ray absorption and emission spectroscopic investigation of Mn doped ZnO films*
J. Jin, G.S. Chang, Y.X. Zhou, X.Y. Zhang, D.W. Boukhvalov, E.Z. Kurmaev, and A. Moewes, Appl. Surf. Science 257, 10748-10751 (2011).
2. *Electronic structure of Lithium metagallate*
N. Johnson, J.A. McLeod and A. Moewes, J. Phy. Cond. Matt. 23, 445501-6 (2011).
3. *Pb⁺ implanted SiO₂ probed by soft X-ray emission and absorption spectroscopy*
D.Z. Zatsepin, A. Hunt, A. Moewes, E.Z. Kurmaev, N.V. Gavrilov, I.S. Zhidkov, and S.O. Cholakh, Journal of Non-crystalline solids 357, 3381-3384 (2011).
4. *Anion bond ordering in spinel-type gallium oxonitride*
T.D. Boyko, C.E. Zvoriste, I. Kinski, R. Riedel, S. Hering, H. Huppertz, and A. Moewes, Phys. Rev. B 84, 085203-1-6 (2011).
5. *Electronic Structure of the Si-C-N Amorphous Films*
D.A. Zatsepin, E.Z. Kurmaev, A. Moewes, and S.O. Cholakh, Physics of the Solid State 53, 1806-1810 (2011).
6. *Nature of the electronic states involved in the chemical bonding and superconductivity at high pressure in SnO*
J.A. McLeod, A.V. Lukoyanov, E.Z. Kurmaev, L.D. Finkelstein, and A. Moewes, JETP Letters 94, 146-150 (2011).
7. *Molecular orientation and optical luminescence properties of soluble star-shaped oligothiophene molecules for organic electronics applications*
R.G. Wilks, G.S. Chang, K.H. Kim, D.H. Choi, and A. Moewes, J. Electr. Spectr. Rel. Phen. 184, 355-359 (2011).
8. *Electron dynamics of transition metal compounds studied with resonant soft x-ray scattering*
J. Jimenez-Mier, G. Herrera-Perez, P. Olalde-Velasco, G. Carabali, E. Chavira, P. de la Mora, W.L. Yang, J. Denlinger, A. Moewes, R. Wilks, Proceedings of 6th International Symposium on Radiation Physics, March 7-10, 2010 Zacatecas, Mexico) – Revista Mexicana de la Fisica 57, 6-13 (2011).
9. *Identifying Local Dopant Structures and their Impact on Magnetic Properties in Spintronic Materials*
R.J. Green, G.S. Chang, X.Y. Zhang, A. Dinia, E.Z. Kurmaev, and A. Moewes, Phys. Rev. B 83, 115207-1-6 (2011).
10. *Ca₃N₂ and Mg₃N₂: unpredicted high-pressure behaviour of binary nitrides*
Cordula Braun, Saskia Börger, Teak Boyko, Gerhard Miede, Helmut Ehrenberg, Peter Höhn, Alexander Moewes, and Wolfgang Schnick, Journal of the American Chemical Society 133, 4307-4315 (2011).
11. *Valence Structure of Alkaline and Post-Transition Metal Oxides*
J.A. McLeod, R.J. Green, N.A. Skorikov, L.D. Finkelstein, M. Abu-Samak, E.Z. Kurmaev, and A. Moewes (proceedings of the SPIE2011 Photonics West conference).
12. *Appearance of Ferromagnetism in Co-Doped CeO₂ Diluted Magnetic Semiconductors Prepared by Solid State Reaction*

- A. Bouaine, R.J. Green, S. Colis, P. Bazylewski, G.S. Chang, A. Moewes, E.Z. Kurmaev, and A. Dinia, *Journal of Physical Chemistry C* 115, 1566-1560 (2011).
13. *Evaluation of Antioxidant Activity and Electronic Structure of Aspirin and Paracetamol*
W. Motozaki, Y. Nagatani, Y. Kimura, K. Endo, T. Takemura, E. Z. Kurmaev, A. Moewes. *J. Mol. Struct.* 985, 63-69 (2011).
 14. *Charge transfer and band gap of ferrocene intercalated into TiSe₂*
A.N. Titov, Y.M. Yarmoshenko, P. Bazylewski, M.V. Yablonskikh, E.Z. Kurmaev, R. Wilks, A. Moewes, V.A. Tsurin, V.V. Fedorenko, O.N. Suvorova, S.Yu. Ketkov, M. Neumann, and G.S. Chang, *Chem. Phys. Lett.* 497, 187-190 (2010).
 15. *RIXS approach to local environment around impurity atoms in diluted magnetic semiconductors and dielectrics*
G.S. Chang, E.Z. Kurmaev, L.D. Finkelstein, A. Moewes, and A. Dinia, *J. Electr. Spectr. Rel. Phen.* 181, 202-205 (2010) (ICES-11 conference)
 16. *Material Properties and Structural Characterization of M₃Si₆O₁₂N₂:Eu²⁺ (N=Ba, Sr) – A Comprehensive Study on a promising green phosphor for pc-LEDs*
C. Braun, S.L. Börger, M. Seibald, G. Miehe, P.J. Schmidt, T.D. Boyko, O. Oeckler, A. Moewes, and W. Schnick, *Chemistry – A European Journal* 16, 9646-9657 (2010).
 17. *Correlation effects in Ni 3d states of LaNiPO*
A.V. Lukoyanov, S.L. Skorniyakov, J.A. McLeod, M. Abu-Samak, R.G. Wilks, E.Z. Kurmaev, and A. Moewes, N.A. Skorikov, Yu.A. Izyumov, L.D. Finkelstein, V.I. Anisimov, and D. Johrendt, *Phys. Rev. B* 81, 235121-1-5 (2010).
 18. *Band gaps and Electronic structure of alkaline-earth and post-transition metal oxides*
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 19. *Electronic structure of Mn in (Zn,Mn)O probed by resonant X-ray emission spectroscopy*
J. Jin, G.S. Chang, W. Xu, Y.X. Xu, W.W. Boukhvalov, L.D. Finkelstein, E.Z. Kurmaev, X.Y. Zhang, and A. Moewes, *Sol. State Comm.* 150, 1065-68 (2010).
 20. *Class of tunable wide band gap semiconductors γ -(Ge_xSi_{1-x})₃N₄*
T.D. Boyko, E. Bailey, A. Moewes, and P. F. McMillan, *Phys. Rev. B* 81, 155207-1-8 (2010).
 21. *Interfacial Properties and Characterization of Sc/Si Multilayers*
T. Shendruk, A. Moewes, E.Z. Kurmaev, P. Ochin, H. Maury, J.-M. Andre, K. Le Gruen, and P. Jonnard, *Thin Solid Films* 518, 3808-3812 (2010).
 22. *Electronic structure of BiMeO₃ multiferroics and related oxides*
J.A. McLeod, Z.V. Pchelkina, L.D. Finkelstein, E.Z. Kurmaev, R.G. Wilks, A. Moewes, I.V. Solovyev, A.A. Belik, and E. Takayama-Muromachi, *Phys. Rev. B* 81, 144103-1-10 (2010).
 23. *Valence band structure and X-ray spectra of oxygen deficient ferrites SrFeO_x*
V.R. Galakhov, E.Z. Kurmaev, M. Neumann, J.A. McLeod, A. Moewes, I.A. Leonidov, V.L. Kozhevnikov, and K. Kuepper, *J. Phys. Chem. C* 110, 5154-5159 (2010)
 24. *Electronic structure of Mn in (Zn,Mn)O probed by resonant X-ray emission spectroscopy*

- J. Jin, G.S. Chang, W. Xu, Y.X. Xu, W.W. Boukhvalov, L.D. Finkelstein, E.Z. Kurmaev, X.Y. Zhang, and A. Moewes, *Sol. State Comm.* 150, 1065-68 (2010).
25. *Electronic structure and band gap determination of solid solutions of γ -(Si_3N_4 - Ge_3N_4)*
T.D. Boyko, E. Bailey, A. Moewes, and P. F. McMillan, *Phys. Rev. B* 81, 155207-1-8).
26. *Interfacial Properties and Characterization of Sc/Si Multilayers*
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27. *Electronic structure of BiMeO_3 multiferroics and related oxides*
J.A. McLeod, Z.V. Pchelkina, L.D. Finkelstein, E.Z. Kurmaev, R.G. Wilks, A. Moewes, I.V. Solovyev, A.A. Belik, and E. Takayama-Muromachi, *Phys. Rev. B* 81, 144103-1-10 (2010).
28. *Valence band structure and X-ray spectra of oxygen deficient ferrites SrFeO_x*
V.R. Galakhov, E.Z. Kurmaev, M. Neumann, J.A. McLeod, A. Moewes, I.A. Leonidov, V.L. Kozhevnikov, and K. Kuepper, *J. Phys. Chem. C* 110, 5154-5159 (2010)
29. *Element-specific electronic structure of Mn dopants and ferromagnetism of (Zn,Mn)O thin film*
J. Jin, G.S. Chang, D.W. Boukhvalov, X.Y. Zhang, L.D. Finkelstein, W. Xu, Y.X. Zhou, E.Z. Kurmaev, and A. Moewes, *Thin Solid Films* 518, 2825-2829 (2010).
30. *Electronic properties of pyroxenes $\text{NaCrSi}_2\text{O}_6$ and $\text{NaFeSi}_2\text{O}_6$*
S.V. Streltsov, J. McLeod, A. Moewes, G.J. Redhammer, and E.Z. Kurmaev, *Phys. Rev. B* 81, 045118-1-5 (2010).
31. *Metal-insulator transition in $\text{NiS}_{2-x}\text{Se}_x$*
J. Kunes, L. Baldassarre, B. Schächner, K. Rabia, C.A. Kuntscher, Dm.M. Korotin, V.I. Anisimov, J.A. McLeod, E.Z. Kurmaev, and A. Moewes, *Phys. Rev. B* 81, 03512201-6 (2010).
32. *Structural models of FeSe_x*
E.Z. Kurmaev, J.A. McLeod, N.A. Skorikov, L.D. Finkelstein, A. Moewes, M.A. Korotin, Yu.A. Izyumov, Y.L. Xie, G. Wu, and X.H. Chen, *J. Phys.: Cond. Matt.* 21, 435702-1-6 (2009).
33. *Effect of N, C and B interstitial atoms on local bonding structure in mechanically activated $\text{TiH}_2/\text{h-BN}$, TiH_2/C and TiH_2/B mixtures*
O.S. Morozova, T.I. Khomenko, Ch. Borchers, A.V. Leonov, E.Z. Kurmaev, A. Moewes, *J. Alloys & Compounds* 483, 309-312 (2009).
34. *Contribution of Fe 3d-states to the Fermi level of CaFe_2As_2*
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35. *Identifying valence structure in LiFeAs and NaFeAs with core-level spectroscopy*
E.Z. Kurmaev, J.A. McLeod, N.A. Skorikov, L.D. Finkelstein, A. Moewes, Yu.A. Izyumov, and S. Clarke, *J. Phys.: Cond. Matt.* 21, 345701-6 (2009).
36. *Strength of correlation in pnictides and its assessment by theoretical calculations and spectroscopy experiment*
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37. *A comparative theoretical and experimental study of the radiation induced decomposition of Glycine*
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38. *Electronic structure of hydrogenated amorphous $Si_{1-x}N_x$ films using soft X-ray emission and absorption measurements*
T. Boyko, S. Kasap, R. Johanson S. Kobayashi, T. Aoki, and A. Moewes, *Physica Status Solidi A* 206, 935-939 (2009).
39. *Ti/C and Ti/B Nanocomposites: Comparison of Sorption-Desorption Properties*
O.S. Morozova, T.I. Khomenko, A.V. Leonov, C. Borchers, E. Kurmaev, A. Moewes, *J. Solid State Phenomena* 151, 203-207 (2009).
40. *Co and Al co-doping for ferromagnetism in ZnO:Co diluted magnetic semiconductors*
G.S. Chang, E.Z. Kurmaev, D.W. Boukhalov, L.D. Finkelstein, A. Moewes, H. Bieber, S. Colis, and A. Dinia, *J. Phys.: Cond. Matt.* 21, 056002-1-5 (2009).
41. *Thermodynamic and kinetic factors effecting hydrogen absorption on metal hydrides*
M. Reda and A. Moewes, *International Journal of Hydrogen Energy* 33, 7505-7506 (2008).
42. *Determining the sp^2/sp^3 bonding concentrations of carbon films using X-ray absorption spectroscopy*
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43. *Characterization of oxide layers formed on chemically treated Ti by using soft X-ray absorption measurements*
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44. *X-ray emission and photoluminescence Spectroscopy of nanostructured Silica with implanted copper ions*
D.A. Zatsepin, V.S. Kortov, E.Z. Kurmaev, N.V. Gavrilov, R.G. Wilks, and A. Moewes, *Phys. Solid State* 50, 2322-2326 (2008).
45. *Unipolar-to-ambipolar conversion of rubrene thin-film transistors by organosilene self-assembled monolayer*
J.H. Seo, G.S. Chang, R.G. Wilks, C.N. Whang, K.H. Chae, S.J. Cho, K.-H. Yoo, and A. Moewes, *J. Phys. Chem. B* 112, 16266 (2008).
46. *X-ray spectra and electronic structures of the iron arsenide superconductors $RFeAsO_{1-x}F_x$ ($R=La, Sm$)*
E.Z. Kurmaev, R.G. Wilks, A. Moewes, N.A. Skorikov, Yu.A. Izyumov, L.D. Finkelstein, R.H. Li, and X.H. Chen, *Phys. Rev. B* 78, 220503R 1-4 (2008).
47. *Ti/C and Ti/h-BN nanocomposites: comparison of hydrogen sorption/desorption properties*
C. Borchers, O.S. Morozova, T.I. Khomenko, A.V. Leonov, E.Z. Kurmaev, A. Moewes, and A. Pundt, *Chem. Phys. Lett.* 465, 82-85 (2008).
48. *Influence of 2-mercapto-5-nitrobenzimidazole treatment on the electronic characteristics of bottom-contact organic field-effect transistors*
D.S. Park, W.C., S.W. Cho, J.H. Seo, I.S. Jeong, T.W. Kim, G.S. Chang, A. Moewes, K.H. Chae, K. Jeong, K.-H. Yoo, and C.N. Whang, *Organic Electronics* 9, 1010-1016 (2008).

49. *RIXS spectra and electronic structure of Sc and Ti dihydrides*
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51. *Defect-induced Ferromagnetism in Mn-doped Cu₂O*
G.S. Chang, E.Z. Kurmaev, D.W. Boukhvalov, A. Moewes, L.D. Finkelstein, M. Wei, and J.L. MacManus-Driscoll, *J. Phys.: Cond. Matt.* 20, 215215 (2008).
52. *X-ray spectra and electronic structure of FeAs superconductors*
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53. *Oxygen X-ray emission and absorption spectra as a probe of electronic structure in strongly correlated systems*
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54. *Effect of h-BN additive on hydrogen sorption by Ti under mechanical treatment in H₂/He flow*
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55. *Energy Band structure and X-ray Spectra of Phenakite Be₂SiO₄*
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56. *The attachment of Amino Fragment to purine: Inner-shell structures and spectra*
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57. *Substituent Effects in the Iron 2p and Carbon 1s edge Near-Edge X-ray Absorption Fine Structure (NEXAFS) Spectroscopy of Ferrocene Compounds*
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58. *Effects of NH₃, O₂, and N₂ co-implantation on Cu out-diffusion and antimicrobial properties of copper plasma-implanted polyethylene*
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59. *Probing Interfacial characteristics of rubrene/pentacene and pentacene/rubrene bilayers with soft X-ray spectroscopy*
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60. *Ti/C and Ti/h-BN nanocomposites: comparison of hydrogen sorption/desorption properties*
O.S. Morozova, T.I. Khomenko, A.V. Leonov, Ch. Borchers, E.Z. Kurmaev, and A. Moewes, *Chemistry for Sustainable Development* 15, 203-211 (2007).
61. *Local electronic structure of Mn dopants in ZnO probed by resonant inelastic scattering*

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62. *Effect of Co and O defects on the magnetism in Co-doped ZnO: Experiment and Theory*
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63. *Electronic structure of NPB and BCP molecules probed by X-ray emission spectroscopy*
 J.H. Seo, C.Y. Kim, S.J. Kang, K.-H. Yoo, C.N. Whang, A. Moewes, and G.S. Chang *Journal of Chemical Physics* 126, 064706-1-5 (2007).
64. *Optical XAFS of ZnO Nanowires at the Zn K-edge and Related Phenomena*
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65. *Post-annealing effect on the electronic structure of Mn atoms in Ga_{1-x}Mn_xAs probed by resonant inelastic X-ray scattering*
 G. S. Chang, E. Z. Kurmaev, L.D. Finkelstein, H.K. Choi, W.O. Lee, Y.D. Park, T. Pedersen, A. Moewes, *J. Phys.: Cond. Matt.* 19, 076215-1-6 (2007).
66. *Electronic structure of a Mn₁₂ molecular magnet: Theory and experiment*
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67. *X-ray Photoelectron and Carbon K α emission measurements and calculations of O-, CO, N-, and S-containing Substances*
 S. Shimada, T. Hiroi, T. Ida, M. Mizuno, K. Endo, E.Z. Kurmaev, and A. Moewes, *J. of Polymer Science B: Polymer Physics* 45, 162-172 (2007).
68. *An X-ray emission and density functional theory study of Zn_{1-x}Mn_xS*
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69. *Buffer layer effect on the structural and electrical properties of rubrene-based organic thin-film transistors*
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70. *Experimental and Theoretical Investigation of the Electronic Structure of 5-Fluorouracil Compounds*
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71. *Soft X-ray absorption and emission characterization of nanodiamond prepared by explosive detonation*
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72. *X-ray absorption of nitrogen doped amorphous carbon films for determining sp^2/sp^3 bonding concentrations*
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73. *Probing changes in the Mn 3d band of $Sm_{0.525}Sr_{0.475}MnO_3$ induced by oxygen isotope substitution*
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74. *Solid versus solution: Examining the electronic structure of metallic DNA with soft X-ray spectroscopy and density functional theory*
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75. *Dependence of DNA Electronic Structure on Environmental and Structural Variations*
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76. *X-ray 2p photoelectron and L_{α} resonant X-ray emission spectra of the 3d metals in Ni_2MnZ ($Z=In, Sn, Sb$) Heusler alloys*
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A. Hunt, W.-Y. Ching, Y.-M. Chiang, and A. Moewes, *Phys. Rev. B* 73, 205120-1-10 (2006).
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79. *Clustering of impurity atoms in Co-doped anatase TiO_2 thin films probed with soft X-ray fluorescence*
G.S. Chang, E.Z. Kurmaev, D.W. Boukvalov, L.D. Finkelstein, D.H. Kim, T.-W. Noh, A. Moewes, and T.A. Callcott, *J. Phys. Cond. Matt.* 18, 4243-4251 (2006).
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