

Publications by CLS Users and Staff

2005 - 2006

11ID-2(PGM)

MSc Thesis

Xu, D. (2006). Adsorption of Boric Acid on Pure and Humic Acid Coated Amorphous-Aluminum Hydroxide: A Raman and Xanes Spectroscopy Study. University of Saskatchewan, Saskatoon, SK.

11ID-1(SGM)

Refereed Journals

Comedi, D.; O.H.Y. Zalloum, D.E. Blakie, J. Wojcik, P. Mascher (2006). Formation of and Light Emission from Si Nanocrystals Embedded in Amorphous Silicon Oxides. *Electrochemical Society Transactions*, 3(11), p. 3.

Heigl, F.; S. Lam, T. Regier, I. Coulthard, T.K. Sham (2006). Time-Resolved X-ray Excited Optical Luminescence from Tris(2-phenyl bipyridine)iridium. *J. Am. Chem. Soc.*, Vol. 128 (12) pp. 3906-3907.

Sundaramurthy, V.; A.K. Dalai, J. Adjaye (2006). HDN and HDS of Different Gas Oils Derived from Athabasca Bitumen Over Phosphorus-doped NiMo/γ-Al₂O₃ Carbides. *Applied Catalysis B: Environmental*, Vol. 68, pp. 38

Tersigni, A.; J. Shi, D.T. Jiang, X.R. Qin (2006). Structure of Tetracene Films on Hydrogen-Passivated Si(001). *Phys. Rev. B*, Vol. 74, pp. 205326.

Wilks, R.G.; J.B. MacNaughton, H.B. Kraatz, T. Regier, A. Moewes (2006). Combined X-ray Absorption Spectroscopy and Density Functional Theory Examination of Ferrocene-Labeled Peptides. *J. Phys. Chem. B*, Vol. 110, pp. 5955-5965.

Zhou, X.T.; F. Heigl, M.W. Murphy, T.K. Sham, T. Regier, I. Coulthard, R.I.R. Blyth (2006). Time Resolved X-ray Excited Optical Luminescence from SnO₂ Nanoribbons: Direct Evidence for the Origin of the Blue Luminescence and the Role of Surface States. *Appl. Phys. Lett.*, Vol. 89, pp. 293109 (see also *Virtual J. Nanoscale Sci. Tech.*, vol. 14, iss. 23, Dec. 4th 2006).

PhD Thesis

Wang, H.M. (2006). The Investigation of Higher Coordinated Ge Species in Alkali Germanate and Alkali Germanophosphate Glasses Using Raman Spectroscopy and O K-edge XANES. University of Toronto, Toronto, ON.

Yang, L. (2006). Inner-Shell Excitation Spectroscopy and Ionic Fragmentation of Small Alkynes. University of New Brunswick, New Brunswick.

MSc Thesis

Lam, S. (2006). XAFS and XEOL Studies of Organic Light Emitting Materials. University of Western Ontario London, ON.

08ID-1(CMCF)

Refereed Journals

Qian, X.; Y. He, X. Ma, M.N. Fodje, P. Grochulski, Y. Luo (2006). Calcium Stiffens Archaeal Rad51 Recombinase from *Methanococcus voltae* for Homologous Recombination. *Journal of Biological Chemistry*, Vol. 281, No. 51, pp. 39380-39387.

Non-Refereed Journals

Grochulski, P.; I. Blomqvist, L. Delbaere (2006). Status of the Canadian Macromolecular Crystallography Facility: Design and Commissioning of the 08ID-1 Beamline at the Canadian Light Source. *Physics in Canada*, 62(5), pp. 301-304.

06ID-1(HXMA)

Refereed Journals

Liu, T.; A. Ramesh, Z. Ma, S.K. Ward, L. Zhang, G.N. George, A.M. Talaat, J.C. Sacchettini, D.P. Giedrocm (2006). CsoR is a Novel Mycobacterium Tuberculosis Copper-Sensing Transcriptional Regulator. *Nature Chemical Biology*, Vol. 3, pp. 60-68.

FACILITY

Refereed Journals

2006

Abergel, R.A.; J.A. Warner, D.K. Shuh, K.N. Raymond (2006). Enterobactin Protonation and Iron Release: Structural Characterization of the Salicylate Coordination Shift in Ferric Enterobactin. *J. Am. Chem. Soc.*, Vol. 128 (27), pp. 8920-8931.

Asai, J. (2006). Radiation Shielding Considerations Against Gas Bremsstrahlung for the Transverse Wall at the Canadian Light Source. *NIMB*, Vol. 251, August 2, pp. 461-469.

Bergstrom, J.C.; J.M. Vogt (2006). The Optical Diagnostic Beamline at the Canadian Light Source. *Nucl. Instr. Meth. A*, Vol. 562, 25 February, pp. 495-512.

He, F.; B.O. Wells (2006). Lattice Strain in Epitaxial BaTiO₃ Thin Films. *Appl. Phys. Lett.*, Vol. 88, pp. 152908.

Kempson, I.M.; W.M. Skinner (2006). Advanced Analysis of Metal Distributions in Human Hair. *Environmental Science & Technology*, Vol. 40 (10), pp. 3423-3427.

LeRoy, R.J.; D.R.T. Appadoo, R. Colin and P. Bernath (2006). On the X²ε⁺, A²ε and C²ε⁺ States of BeH, BeD and BeT. *Journal of Molecular Spectroscopy*, Vol. 236, pp. 178-188.

Publications

Lombi, E.; K.G. Scheckel, R.D. Armstrong, S. Forrester, J.N. Cutler, D. Paterson (2006). Speciation and Distribution of Phosphorus in a Fertilized Soil: A Synchrotron-based Investigation. *Soil Sci. Soc. J. Am. J.*, Vol. 70, pp. 2038-2048.

Michaelian, K.H.; R.H. Hall, K.I. Kenny (2006). Photoacoustic Infrared Spectroscopy of Syncrude Post-Extraction Oil Sand. *Spectrochimica Acta A*, Vol. 64, pp. 703-710.

Misirlioglu, I.B.; S.P. Alpay, F. He, B.O. Wells (2006). Stress Induced Monoclinic Phase in Epitaxial BaTiO₃ on MgO. *J. Appl. Phys.*, Vol. 99, pp. 104103.

Neethirajan, S.; C. Karunkaran, S. Symons, D.S. Jayas (2006). Classification of Vitreousness in Durum Wheat Using Soft X-ray and Transmitted Light Systems. *Computers and Electronics in Agriculture*, Vol. 53, pp. 71-78.

Pushparajah, T.; N.H. Low (2006). Adulteration of Apple with Pear Juice: Emphasis on Major Carbohydrates, Proline and Arbutin. *Journal of Agricultural and Food Chemistry*, Vol. 54, January, pp. 4861-4867.

Pushparajah, T.; N.H. Low (2006). Isolation and Identification of Select Oligosaccharides from Commercially Produced Total Invert Sugar with a proposed Mechanism for their Formation. *Journal of Agricultural and Food Chemistry*, Vol. 54, pp. 2754-2760.

Ram, R.S.; S.P. Davis, L. Wallace, R. Engleman, D.R.T. Appadoo and P.F. Bernath (2006). Fourier transform emission spectroscopy of the B²Σ⁺-X²Σ⁺ system of CN. *Journal of Molecular Spectroscopy*, Vol. 237 (2), pp. 225-231.

Non-Refereed Journals

Hallin, E.; M. de Jong, T. Ellis, W. Thomlinson, M. Dalzell (2006). Canadian Light Source. *Synchrotron Radiation News*, Vol. 19, pp. 7-12.

Refereed Journals

2005

Asai, J. and H. Hirayama (2005). Radiological Shielding Considerations for the First Optics Enclosures of the Canadian Light Source. *Nucl. Instr. Meth. A*, Vol. 539, pp. 654-667.

Bertrand, B.; F. Esteve, H. Elleaume, C. Nemoz, S. Fiedler, A. Bravin, G. Berruyer, T. Brochard, M. Renier, J. Machecourt, W. Thomlinson, J.-F. Le Bas (2005). Comparison of Synchrotron Radiation Angiography with Conventional Angiography for the Diagnosis of In-Stent Restenosis after PTCA. *European Heart Journal*, Vol. 26, pp. 1284-1291.

Bottomley, D.; I. Clark, N. Batty, T.G. Kotzer (2005). Geochemical and Isotopic Evidence for a Genetic Link Between Canadian Shield Brines, Dolomitization in the Western Canadian Sedimentary Basin and Devonian Calcium Chloride Seas. *Can J Earth Sci*, Vol. 42, pp. 2059-2071.

Catalano, J.G.; J.A. Warner, G.E. Brown, Jr. (2005). Sorption and Precipitation of Co(II) in Hanford Sediments and Alkaline Aluminate Solutions. *Appl. Geochem.*, Vol. 20, pp. 193-205.

Feng, R.; R.G. Cavell, A.P. Hitchcock (2005). Ionic Photofragmentation of SO₂ in the Sulfur 2p and 2s Regions. *J. Electron Spect. & Relat. Phenom.*, Vol. 144-147, pp. 231-234.

Gauthier, M.A.; I. Stangel, T.H. Ellis, X.X. Zhu (2005). A New Method for Quantifying the Intensity of the C=C Band of Dimethacrylate Dental Monomers in Their FTIR and Raman Spectra. *Biomaterials*, Vol. 26, pp. 6440-6448.

Gauthier, M.A.; I. Stangel, T.H. Ellis, X.X. Zhu (2005). Oxygen Inhibition in Dental Resins. *Journal of Dental Research*, Vol. 84, pp. 725-729.

Gordon, I.E.; D.R.T. Appadoo, A. Shayesteh, K.A. Walker, P.F. Bernath (2005). Fourier Transform Infrared Emission Spectra of MnH and MnD. *Journal of Molecular Spectroscopy*, Vol. 229 (1), pp. 145-149.

Gordon, R.A.; E.D. Crozier, D.T. Jiang, P.S. Budnik, T.L. Monchesky, B. Heinrich (2005). In Situ XAFS Study of Fe Epitaxially Grown by MBE on GaAs(001)-4x6. *Surf. Sci.*, Vol. 581(1), pp. 47-57.

Gordon, R.A.; P.S. Budnik, D.T. Jiang, E.D. Crozier (2005). Evolution of an Iron Film on GaAs(001)-4x6. *Physica Scripta*, Vol. T115, pp. 492-494.

He, F.; B.O. Wells, S.M. Shapiro (2005). Strain Phase Diagram and Domain Orientation in SrTiO₃ Thin Films. *Phys. Rev. Lett.*, Vol. 94, pp. 176101.

Innocenti, F.; L. Zuin, M.L. Costa, A. Dias, A. Morris, A. Paiva, S. Stranges, J.B. West, J.M. Dyke (2005). Photoionization Studies of the Atmospherically Important Species N and OH at the ELETTRA Synchrotron Radiation Source. *J. Electron Spect. & Relat. Phenom.*, Vol. 142, pp. 241-252.

Karunakaran, C.; D.S. Jayas (2005). Machine Vision System in Postharvest Technology. *Stewart Postharvest Review*, Vol. 2.2, pp. 1-9.

Keyrilainen, J.; M. Fernandez, S. Fiedler, A. Bravin, M.-L. Karjalainen-Lindsberg, P. Virkkunen, E.-M. Elo, M. Tenhunen, P. Suorrti, W. Thomlinson (2005). Visualisation of Calcifications and Thin Collagen Strands in Human Breast Tumour Specimens by the Diffraction-Enhanced Imaging Technique: A Comparison with Conventional Mammography and Histology. *European Journal of Radiology*, Vol. 53, pp. 226-237.

Kim, P.S.; S.J. Naftel, T.K. Sham, I. Coulthard, Y.F. Hu, A. Moewes, J.W. Freeland (2005). Photon-in Photon-out Studies of Alq₃ (tris-aluminum-8-hydroxyquinolate): Synchrotron Light Excited Optical Luminescence and X-ray Emission. *J. Electron Spect. & Relat. Phenom.*, Vol. 144-147, pp. 901-904.

Publications

Kim, P.S.; Y.F. Hu, R.J. Puddephatt, T.K. Sham (2005). X-ray Excited Optical Luminescence Studies of PPh_3AuCl : Site Specificity at the C, N, P, K-edge and Au $M_{5,4}$ -Edges. *Phys. Script*, Vol. T115, pp. 545-547.

Kim, P.S.; Y.F. Hu, Y.M. Yu, T.K. Sham (2005). X-ray Absorption and X-ray Excited Optical Luminescence (XEOL) Studies of $\text{KAu}(\text{CN})_2$ at the C and N K-edge and the Au L_{3} -edge Comparison with Density Functional Theory (DFT) Calculation. *J. Electron Spect & Relat. Phenom.*, Vol. 144-147, pp. 811-815.

Kitchen, M.J.; R.A. Lewis, N. Yagi, K. Uesugi, D. Paganin, S.B. Hooper, G. Adams, S. Jureczek, J. Singh, C.R. Christensen, A.P. Hufton, C.J. Hall, K.C. Cheung, K.M. Pavlov (2005). Phase Contrast X-ray Imaging of Mice and Rabbit Lungs: a comparative study. *British Journal of Radiology*, Vol. 78, pp. 1018-1027.

Kotzer, T.G.; J.M. Hendry and D.K. Solomon (2005). Sources of Dissolved Helium in Clayey Aquitards and its Use to Evaluate the Timing of Geologic Events. *Geochimica et Cosmochimica Acta*, Vol. 69, pp. 475-483.

Kotzer, T.G.; Renaud, R.; I.D. Clark, G.M. Milton, D.J. Bottomley (2005). The Mobility of Anthropogenic ^{129}I in A Shallow Sand Aquifer at Sturgeon Falls, Ontario, Canada *Radiochimica Acta*, Vol. 93, pp. 363-381.

LeRoy, R.J.; D.R.T. Appadoo, P. Bernath (2005). Direct-potential-fit analysis of new infrared and UV/visible $\text{A}\epsilon^{1+}\text{X}\text{l}\epsilon^+$ emission spectra of AgH and AgD. *Journal of Chemical Physics*, Vol. 123, pp. 204-304.

Mohan, L.A.; C. Karunakaran, D.S. Jayas, N.D.G. White (2005). Classification of Bulk Seeds Using Their Reflectance Characteristics. *Canadian Biosystems Engineering*, Vol. 47, pp. 7.7-7.14.

Neethirajan, S.; C. Karunakaran, D.S. Jayas (2005). Differentiating Vitreous and Non-Vitreous Durum Wheat Kernels Using Soft X-rays. *Bioprocess and Biosystems Engineering*.

Shayesteh, A.; G.E. Iouli, D.R.T. Appadoo, P.F. Bernath (2005). Infrared Emission Spectra and Equilibrium Bond Lengths of Gaseous ZnH_2 and ZnD_2 . *Phys. Chem. Chem. Phys.*, Vol. 7, pp. 3132-3142.

Sitepu, H.; M.G. Kopylova, D.H. Quirt, J.N. Cutler, T.G. Kotzer (2005). Synchrotron Micro-X-ray Fluorescence Analysis of Natural Diamonds: First Steps in Identification of Mineral Inclusions in situ. *American Mineralogist*, Vol. 90, pp. 11-12; pp 1740-1747.

Skinneer, R.; J. Lee, Y.F. Hu, D.T. Jiang, P. Aich, S. Wettig, J. Maley, R. Sammynaiken (2005). Local Structure of M-DNA at the Nitrogen K-edge: Evidence towards a Metal Ion Induced Conduction Band. *J. Nanoscience and Nanotechnology*, Vol. 5 pp. 1557-1560.

Stolte, W.C.; R. Huillemin, A. Wolska, R. Feng, I.C. Tran, D.W. Lindle (2005). Photofragmentation of SO_2 following Photoexcitation Near the Sulfur $L_{2,3}$ Ionization Threshold (Cation and Anion). *J. Electron Spect. & Relat. Phenom.*, Vol. 144-147, pp. 157-160.

Thomlinson, W.; P. Suortti, D. Chapman (2005). Recent Advances in Medical Applications of Synchrotron Radiation. *Nucl. Instr. Meth. A*, Vol. 543, pp. 288-296.

Tse, J.S.; D.D. Klug, D.T. Jiang, C. Sternemann, M. Volmer, S. Huotari, K. Hamalainen (2005). Compton Scattering of Elemental Silicon at High Pressure. *Appl. Phys. Lett.*, Vol. 87, pp. 191905.

Workman, W.; S. Kim, T.G. Kotzer (2005). Interlaboratory Comparison of Organically Bound Tritium Measurements in Environmental Samples. *Fusion Sci. Tech.*, Vol. 48, pp. 763-766.

Yu, P.; J.J. McKinnon, C.R. Christensen, D.A. Christensen (2005). Use of Synchrotron-based FTIR Microspectroscopy to Determine Protein Secondary Structure of Raw and Roasted Brown and Golden Flax Seed. *Canadian Journal of Animal Science*, Vol. 85, pp. 437-448.

Yu, S.; D. Fu, A. Shayesteh, I.E. Gordon, D.R.T. Appadoo, P. Bernath (2005). Infrared and Near Infrared Emission Spectra of SbH and SbD. *Journal of Molecular Spectroscopy*, Vol. 229 (2), pp. 257-265.

Non-Refereed Journals

2005

Dalzell, M.T.J. (2005). Canadian Light Source Shines. *Synchrotron Radiation News*, Vol. 18, No. 1, pp. 38-39.

Durocher, K.; T.G. Kotzer, S. Whittaker (2005). Physical and Chemical Characterization of Subterranean CO_2 Storage Sites Using Synchrotron-Based Computed Microtomography Techniques. Summary of Investigations 2005, Volume I, Saskatchewan Geological Survey, Sask. Industry and Resources. Misc. Report 2005-4.1 October, Paper A-3 / CD-ROM.

Grochulski, P. (2005). Introduction to Canadian Light Source. *PINK Bulletin*, Vol. 22, pp. 31-37.

He, Feizhou, Barrett O. Wells and S. M. Shapiro (2005). Perovskite Thin Films Under Strain. *Science Highlights from the National Synchrotron Light Source*. (<http://www.nsls.bnl.gov/newsroom/science/2005/09-He.htm>), September 21.

Jayas, D.S.; L.A. Mohan, C. Karunakaran (2005). Unloading Automation Implemented in Grain Industry. *Resource Magazine*, Vol. 12 (7). pp. 6.

Conference Proceedings

2006

Asai, J. (2006). Comparison of Radiation Shielding of the First Optics Enclosures Between the Bending Magnet and Insertion Device Beamlines at the Canadian Light Source. 10th International Symposium on Radiation Physics (ISRP-10), September 15-22.

Gordon, R.; D. Crozier, D.T. Jiang, J. Shoults, W. Barg, P. Budnik (2006). Characteristics of the MBE1 end-station at PNC/XOP. The 13th International Conference on X-ray Absorption Fine Structure, Stanford, CA July 9-14.

Grochulski, P.; I.J. Colton, R.J. Kazlauskas (2006). X-Ray Structure of a Bound Phosphonate Transition State Analog and Enantioselectivity of *Candida rugosa* lipase toward Chiral Carboxylic Acids. 23rd European Crystallographic Meeting, ECM23, Leuven, Acta Cryst, Vol. A62, p. 150.

Lanke, U.D.; A.P. Hitchcock, P. Hitchcock, J. Stewart-Ornstein, K. Kaznatcheev, A. Kolmakov, I. Annelsey, A. McCready, S.G. Urquhart (2006). CaPeRS and LOX: Prospects for Photoemission Electron Spectromicroscopy at the Canadian Light Source. Proceedings of XRMO5, IPAP Conference Proceedings Series 7, pp. 85-87.

2005

Grochulski, P., L. Gonneville and J. Sygusch (2005). The Crystal Structure of NEP and Its Complexes with Inhibitors. XX Congress of the International Union of Crystallography Florence, Italy August 23-31, Acta Cryst., Vol. A61, p. C213.

Grochulski, P.; L. Gonneville and J. Sygusch (2005). The Crystal Structure of NEP and its Complexes with Inhibitors. Acta Cryst., Vol. A61, p. C213.

May, T.; D. Appadoo, R. McKellar (2005). Commissioning of the Far Infrared Beamline at the Canadian Light Source. Proceedings of WIRMS, Workshop on Infrared Microscopy & Spectroscopy with Accelerator Based Sources. Rathen, Germany, June 26-30.

Chapters in Books

2005

Jokic, A.; H.R. Schulten, J.N. Cutler, M. Schnitzer, P.M. Huang (2005). Catalysis of the Maillard Reaction by δ -MnO₂: A Significant Abiotic Sorptive Condensation Pathway for the Formation of Refractory N-Containing Biogeomacromolecules in Nature. Soil Abiotic and Biotic Interactions and Impact on the Ecosystem and Human Welfare, Ed. P.M. Huang, A. Violante, J.M. Bollag and P. Vityakon. Science Publishers, Inc. pp. 127-152.

Canadian Light Source Inc.
University of Saskatchewan
101 Perimeter Road, Saskatoon, SK
Canada S7N 0X4

Phone: (306) 657-3500
Fax: (306) 657-3535

www.lightsource.ca



Canadian Light Source *Centre canadien de rayonnement synchrotron*