

Publications

Refereed Publications

1. Smith, L.J., Holmes, A., Mason, M.D., Zheng, T., and Wise, Sr., J.P. The Cytotoxicity and Genotoxicity of Soluble and Particulate Cobalt in Human Lung Fibroblast Cells. *Toxicology and Applied Pharmacology*, 278: 259-265, 2014.
2. Kandpal, S.K., Co, A., Allcroft, K., Neivandt, D.J., Bousfield, D.W., Mason, M.D. "Laser-induced fluorescent micro-structures in silver nanoparticle based films." *Optical Materials*, 36(5), 873-878, 2014.
3. Holmes, A.L., The, R., Thompson, K., Mason, M.D., Kandpal S.K., Zheng, T., Wise, Sr., J.P. "Chronic Exposure to Particulate Nickel Induces Neoplastic Transformation in Human Lung Epithelial Cells." *Toxics*, 1, 46-59, 2013.
4. Sterling, S.M., Allgeyer, E.S., Fick, J., Prudovsky, I., Mason, M.D., Neivandt, D.J. "Phospholipid Diffusion Coefficients of Cushioned Model Membranes Determined via Z-Scan Fluorescence Correlation Spectroscopy." *Langmuir*, 29 (25), 7966-7974, 2013.
5. Au, JT, Craig, G, Longo, V, Zanzonico, P, Mason, M., Fong, Y., Allen, PJ. "Gold Nanoparticles Provide Bright Long-Lasting Vascular Contrast for CT Imaging." *American Journal of Roentgenology*, 200 (6):1347-51, 2013.
6. Savery, L.C.; Wise, S.S.; Falank, C.; Wise, J.; Gianios, Jr., C.; Thompson, W.D.; Perkins, C.; Mason, M.D.; Payne, R.; Kerr, I.; Wise, Sr., J.P. "A Global Assessment of Silver Pollution using Sperm Whales (*Physeter macrocephalus*) as an Indicator Species". *Journal of Environmental and Analytical Toxicology*, In Press.
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8. Kandpal, S.K.; Goundie, B.; Wright, J.; Pollock, R.A.; Mason, M.D.; Meulenberg, R.W. "Investigation of the Emission Mechanism in Milled SrAl₂O₄:Eu,Dy Using Optical and Synchrotron X-ray Spectroscopy". *ACS Applied Materials & Interfaces*, 3(9), 3482-3486, 2011.
9. Allgeyer, E.; Sterling, S.M.; Neivandt, D.J.; Mason, M.D. "Low Axial Drift Stage and Temperature Controlled Liquid Cell for Z-Scan Fluorescence Correlation Spectroscopy in an Inverted Confocal Geometry". *Applied Physics Letters*, 82(5), 2011.
10. Kennard, R.; DeSisto, W.J.; Mason, M.D. "Molecular Diffusivity Measurement through Alumina Membrane Using Time-Resolved Fluorescence Imaging". *Applied Physics Letters*, 97(21), 2010.

11. Wise, Sr., J.P.; Goodale, B.C.; Wise, S.S.; Craig, G.; Sigdele, A.; Walter, R.B.; Thompson, W.D.; Ng, A.K.; Spalding, M.J.; Mason, M.D. "Silver Nanospheres Are Cytotoxic and Genotoxic to Fish Cells". *Aquatic Toxicology*, **97**(1): 34-41, 2010.
12. Allgeyer, E.; Pongan, A.; King, M.; Mason M.D. "Signal Comparison of Single Fluorescent Molecules and Raman Active Gold Nanoprisms" *Nano Letters*, **9**(11): 3816-3819, 2009.
13. Khalil, A.; Aponte, C.; Zhang, R.; Davisson, T.; Dickey, I.; Engelman, D.; Hawkins, M.; Mason, M. "Image Analysis of Soft-Tissue In-Growth into and Attachment to Alumina Ceramic Foam Implants in Canines". *Medical Engineering and Physics*, **31**(7):775-83, 2009.
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17. Khalil, A.; Mason, M.; Dickey, I.; Zhang, R.; Aponte, C.; Davisson, T.; Engelman, D.; Hawkins, M. "Pattern of Soft Tissue In-Growth into Porous Implants Based on Novel Imaging Tools". *Transactions of the Orthopaedic Research Society*, Vol. **33**, 1877, 2008.
18. King, M.D.; Khadka, S.; Craig, G.; Mason, M.D. "The Effect of Local Heating on the SERS Efficiency of Single Optically Trapped Prismatic Nanoparticles". *J. Phys. Chem. C.*, **112** (31), 11751-11757, 2008.
19. Kennard, R.; DeSisto, W.; Giririjan, T.P.; Mason, M.D. "Intrinsic Property Measurement of Surfactant-Templated Mesoporous Silica Films Using Time-Resolved Single-Molecule Imaging". *Virtual Journal of Biological Physics Research*, **15** (8), April 15, 2008. *Editorial Board Selected*.
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Book Chapters

1. Co, A; Sitarski, A.M.; Grant, J.; Mason, M.D. "Radiologically Imageable Nanoparticles" *Imaging and Visualization in the Modern Operating Room: A Comprehensive Guide for Physicians, In Press.*
2. Sitarski, A.; Grant, J.; Kandpal, S.; Doolittle, A.; Newsom, M.; Mason, M.D. "Engineered Gold Nanoparticles as Contrast Agents for Biological and Medical Imaging", *Frontiers of Nanobiomedical Research, V. Torchilin ed 2013.*
3. Sitarski, A.; Grant, J.; Kandpal, S.; Mason, M.D. "Diagnostics and Treatment: in Nanomedicine". *Future Medicine*, **12**, pp.3-16, 2012.
4. Allgeyer, E.; Grant, J.; Kandpal, S.; Craig, G.; Mason, M.D. "Gold Nanoparticles" in *An Introduction to Molecular Biophysics: Biological Methods for Physical Scientists*. Ed. Jay Nadeau. Taylor & Francis Group, Boca Raton, FL; CRC Press, 2011.

5. Craig, G.; Allen, P.; Mason, M.D. "Synthesis, Characterization and Functionalization of Gold Nanoparticles for Cancer Imaging" in *Cancer Nanotechnology: Methods and Protocols*. Eds. Grobmeyer, S.R.; Moudgil, B.M. Humana Press, New York, 2010.
6. Hess, S.T., Gould, T.J., Gunewardene, M., Mason, M.D., Bewersdorf, J. "Ultra-High Resolution Imaging of Biomolecules by Fluorescence Photoactivation Localization Microscopy (FPALM)". *Methods in Biophysics*, 2007.

Conference Proceedings

1. Sanjeev Kumar Kandpal, Amiee Co, Michael D. Mason, Douglas W. Bousfield, David J. Neivandt. "Fluorescent Active Laser-Drawn Features on Nanoparticle Films" ACS Conference, April-2013, New Orleans, LA.
2. Sanjeev Kumar Kandpal, KodyAllcroft, Michael D. Mason, Douglas W. Bousfield, David J. Neivandt. "Laser-Drawn Features on Nanoparticle Films" AiChE Conference, Oct-2012, Pittsburgh, PA.
3. Sanjeev Kumar Kandpal, Kody Allcroft, Michael D. Mason, Douglas W. Bousfield, David J. Neivandt. "Laser-Drawn Features On Nanoparticle Films" International Coating Science and Technology Symposium, Sep-2012, Atlanta, GA.
4. V.Rajendran, B.Hillebrands, N.Meenakshisundaram, K.E.Geckeler (Eds), *Processes And Characterization of Advanced Nanostructured Materials*, Kandpal, S.K; Co.A; Pongan.A; Boser.B; Mason,M.D, MACMILLAN 2011.
5. Wise, Jr., J.P.; Wise, S. S.; Wise, J.; Mckay, J.; Browne, M.; Joyce, K.; Braun, M.; Wise, C.; Duffy, R.; Estell, E.; Brown, J.; Gianios Jr., C.; Mason, M.; Shehata, T.; Hammond, D.; Wise, Sr., J.P. "Simulated Spaceflight Increases Chromate-Induced Genotoxicity". *Toxicological Sciences*, **114**: 1125, 2010. (Abstract)
6. Rajendran, V.; Hillebrands, B.; Meenakshisundaram, N; Geckeler, K.E. (Eds). *Processes and Characterization of Advanced Nanostructured Materials*. Kandpal, S.K; Co, A.; Pongan, A.; Boser, B.; Mason, M.D, Macmillan 2011.
7. Wise, J.; Duffy, R.; Xie, H.; LaCerte, C.; Mason, M.; Jeevaragen, A.; Wallace, W.; Hammond. D.; Shehata, T.; Wise, Sr., J.P. "Comparative Toxicity of Lunar, Martian and Earth Dusts in Human Skin Fibroblast Cells". *Toxicological Sciences*, **114**: 375, 2010.
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10. Wise, Jr. J.P.; Wise, S.S.; Wise, J.; McKay, J.; Browne, M.; Joyce, K.; Braun, M.; Wise, C.; Duffy, R.; Estell, E.; Brown, J.; Gianios, Jr. C.; Mason, M.; Shehata, T.; Hammond, D.; Wise, Sr., J.P. "Altered Gravity Exacerbates Chromate-Induced Genotoxicity". *Gravitational and Space Biology*, **23**(1): 32, 2009.

11. Wise, Jr., J.P.; Wise, S.S.; Mason, M.D.; Li Chen T.; LaCerte C.; Craig, G.; Walter, R.; Payne, R.; Kerr, I.; Kraus, S.; Wise, Sr., J.P. "Toxicity of Silver Nanoparticles in Human, Marine Mammal and Fish Cells". *Proceedings of the 2nd USAF ASC/AFRL ESOH Nanomaterial Workshop*, 2009.
12. Wise, S.S.; Mason, M.D.; LaCerte, C.; Li Chen, T.; Craig, G.; Walter, R.; Payne, R.; Kerr, I.; Gianios, Jr., C.; Wise, J.; Thompson, W.D.; Wise, Sr., J.P. "Silver Nanoparticle Toxicity in Sperm Whale (*Physeter macrocephalus*) Cells and Global Distribution of Silver Levels in Sperm Whale Skin Tissue". *Proceedings of the 18th Biennial Conference of the Biology of Marine Mammals*, p. 278, 2009.
13. Wise, Jr., J.P.; LaCerte, C.; Wise, S.S.; Gianios, Jr., C.; Wise, J.; Payne, R.; Kerr, I.; Thompson, W.D.; Mason, M.D.; Wise, Sr., J.P. "Gold and Titanium Levels in Sperm Whale (*Physeter macrocephalus*) Skin Biopsies Collected from around the Globe during the Voyage of the *Odyssey*". *Proceedings of the 18th Biennial Conference of the Biology of Marine Mammals*, p. 278, 2009.
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16. Wise, J.T.; LaCerte, C.; Xie, H.; Huang, J.; McKay, J.; Bickford, M.; Okeny, M.; Bousfield, D.; Mason, M.; Wise, Sr. J.P. "Are Cellulose Nanoparticles Toxic to Humans and Fish?" *Toxicological Sciences*, **108**: 876, 2009.
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18. Khalil, A.; Mason, M.; Dickey, I.; Zhang, R.; Aponte, C.; Davisson, T.; Engelman, D.; Hawkins, M. "Pore Size and Morphology Modulate Patterning of Soft-Tissue In-Growth in Porous Titanium Implants Based on Novel Imaging Tools". *Transactions of the Orthopaedic Research Society*, 2009.
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23. Wise, S.S.; Mason, M.D.; Shaffiey, F.; Li Chen, T.; Goodale, B.; Craig, G.; Walter, R.; Payne, R.; Kerr, I.A.R.; Winn, R.; Wise, Sr.; J.P. "The Cytotoxicity and Genotoxicity of Silver Nanoparticles in Target Species." *Marine Environmental Research*, **66**(1): 64-64, July 2008.
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25. Wise, S.S.; Mason, M.D.; Shaffiey, F.; Li Chen, T.; Goodale, B.; Craig, G.; Walter, R.; Payne, R.; Kerr, I.A.R.; Winn, R.; Wise, Sr.; J.P. "The Cytotoxicity and Genotoxicity of Silver Nanoparticles in Target Species". *Proceedings of the Biennial Meeting of PRIMO (Pollution Research in Marine Organisms)*, May, 2007.
26. Knight, T.; Chada, V.G.R.; Wise, S.S.; Mason, M.D.; Thompson, W.D.; Wise, J.P.; Ng, A.K. "Cell-based Assays for Cytotoxic and Pro-inflammatory Effects of Gold Nanoparticles". *Technical Proceedings of the 2007 Nanotechnology Conference*. May 23, 2007. (0)
27. Qin, Q.; Wise, S.S.; Oberdorster, G.; Mason, M.D.; Xie, H.; and Wise, Sr.; J.P. "The Cytotoxicity of Copper Nanoparticles in Human Lung Cells". *Proceedings of the Northeast Society of Toxicology (NESOT) Annual Meeting*, October 2006.
28. Wise, S.S., Mason, M.D., Chada, V.G.R., LaCerte, C., Ng, A.K.; Wise, Sr.; JP. "The Cytotoxicity of Gold Nanospheres in Human Lung Cells". *Proceedings of the Northeast Society of Toxicology (NESOT) Annual Meeting*, October 2006.
29. Uygur, B.; Wise, S.S.; Mason, M.D.; Ng, A.K.; Wise, Sr.; J.P. "Cytotoxicity and Genotoxicity of Silver Nanoparticles". *Proceedings of the Northeast Society of Toxicology (NESOT) Annual Meeting*, October 2006.
30. Knight, T.; Wise, S.S.; Mason, M.D.; Wise, Sr.; J.P.; Ng, A.K. "In Vitro Effects of Gold Nanoparticles on Various Immune Cell Types and Lung Fibroblasts". *Proceedings of the 4th Conference on Molecular Mechanisms of Metal Toxicity and Carcinogenesis*. September, 2006.
31. Mason, M.D.; Ray, K.; Feke, G.D.; Grober, R.D.; Pohlers, G.; Cameron, J.F. "Calibration and Validation of Projection Lithography in Chemically Amplified Resist Systems Using Fluorescence Imaging". *Proceedings of SPIE - The International Society for Optical Engineering*, **5038** (I): 473-482, 2003.
32. Sirbulu D.J.; Mason M.D.; Buratto S.K. "Correlation between Bulk Morphology and Luminescence in Porous Silicon Investigated by Evaporation Induced Pore Collapse". *Proceedings of the Materials Research Society*, Vol **638**, F5.21, 2000.
33. Mason, M.D.; Credo, G.M.; Carson, P.J.; Buratto, S.K. "Luminescence Intermittency and Quantum Efficiency of Individual Porous Si Nanoparticles". *Proceedings of the Materials Research Society*, Vol **560**, 1999.
34. Mason, M.D.; Credo, G.M.; Weston, K.D.; Buratto, S.K. "Photoluminescence from Single Porous Silicon Chromophores". *Proceedings of the Materials Research Society*, Vol **569**, 1998.

Theses Advised as Major Professor

1. "Predicting fluid flow in Porous Polymer Matrices using Darcy's Law," Matthew Newsom, M.S. Thesis, Biological Engineering, University of Maine, 2014.
2. "Synthesis and Characterization of silver Nanoparticle impregnated Porous Materials for Antimicrobial Water Filtration and Surface Enhanced Raman Scattering", Andrew Doolittle, M.S. Thesis, Biological Engineering, University of Maine, 2014.
3. "Synthesis, Characterization and Applications of Photoactive Nanomaterials", Sanjeev Kumar, PhD Thesis, Chemical Engineering, University of Maine, 2013.
4. "Nanoparticle Based Contrast Agents for Medical Imaging", Gary A. Craig, PhD Thesis, Biomaterials (I-PhD), University of Maine, 2012.
5. "Development of Instrumentation for Sum Frequency Spectral Imaging Combined with Confocal Fluorescence Imaging and Additional Topics", Edward Allgeyer, PhD Thesis, Physics, 2011.
6. "Characterization of mesoporous materials via fluorescent spectroscopic methods", Raymond Kennard, PhD Thesis, Chemical Engineering, University of Maine, 2011.
7. "Metal Nanoparticle Conjugates for Development and Sensing in Paper Based Dielectrophoretic Platforms" Matthew King, M.S. Thesis, Biological Engineering, University of Maine, 2008.
8. "Pancreatic Cancer Detection using Engineered Metallic Nanoparticle Conjugates" Gary Craig, M.S. Thesis, Biological Engineering, University of Maine, 2008.
9. "Paper-based biochemical and chemical amplification techniques for bio-detection," Matthais Uvieghara, M.S. Thesis, Chemical Engineering, University of Maine, 2007.

Patents

1. U.S. Patent No. 8,217,992 B2. Awarded July 10, 2012. Titled "Microscopic Imaging Techniques," Joerg Bewersdorf, Michael Mason, Sam Hess.