Alexei V. Tivanski

Department of Chemistry, University of Iowa

Curriculum Vitae

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EDUCATION AND PROFESSIONAL HISTORY

Post Graduate Education

2005 - 2007 **Postdoctoral Scholar**, Lawrence Berkeley National Laboratory

Higher Education

2007 **Postdoctoral Research Associate**, Physical Chemistry, Lawrence Berkeley National Laboratory
2005 **Ph.D.**, Physical Chemistry, University of Pittsburgh

2001 **M.S.**, Physics and Mathematics, Moscow Institute of Physics and Technology
1999 **B.S.**, Physics and Mathematics, Moscow Institute of Physics and Technology

Professional and Academic Positions

2023 - Present **Professor**, Department of Chemistry, University of Iowa
2014 - 2023 **Associate Professor**, Department of Chemistry, University of Iowa
2007 - 2014 **Assistant Professor**, Department of Chemistry, University of Iowa
2005 - 2007 **Postdoctoral Research Associate**, Chemical Sciences Division, Lawrence Berkeley National Laboratory
1999 - 2005 **Research Assistant**, Department of Chemistry, University of Pittsburgh

Honors and Awards

2020 - 2021 **Career Development Award**, University of Iowa
2009 - 2010 **Old Gold Summer Fellowship**, University of Iowa
2008 - 2010 **Petroleum Research Fund Type G Award**, American Chemical Society
2002 - 2003 **Andrew Mellon Foundation Pre-Doctoral Fellowship**, University of Pittsburgh

Memberships

2013 - Present The Nanoscience and Nanotechnology Institute
2009 - Present Center for Biocatalysis and Bioprocessing, University of Iowa
2000 - Present American Chemical Society

SCHOLARSHIP

Publications

CLAS * System * = Senior Author, Major Contribution, ** = Secondary Contribution, *** = Equal Contribution, **** = Minor Contribution
(†indicates undergraduate student mentee, ^indicates graduate student mentee, #indicates postdoctoral researcher mentee)

Refereed Articles (73 total)

1. * ^Kaluarachchi, C., Or, V., †Lan, Y., Hasenecz, E., Kim, D., ^Madawala, C., Dorce, G., Mayer, K., Sauer, J., Lee, C., Cappa, C., Bertram, T., Stone, E., Prather, K., Grassian, V., Tivanski, A. V. (**2022**). Effects of Atmospheric Aging Processes on Nascent Sea Spray Aerosols Physicochemical Properties. *ACS Earth Space Chem.*, *6, 1,* 2732–2744. Article
2. *** ^Tiba, A., Perman, J., MacGillivray, L., Tivanski, A. V. (**2022**). Supramolecular Modification of a Metal-Organic Framework Increases Sorption Switching: Insights into Structural Deformation of ZIF-8. *J. Mater. Chem. A, 10,* 21053-21060. Letter
3. * ^Kaluarachchi, C. P., Or, V. W., †Lan, Y., ^Madawala, C. K., Hasenecz, E. S., Crocker, D. R., Morris, C. K., ^Lee, H. D., Mayer, K. J., Sauer, J. S., Lee, C., Dorce, G., Malfatti, F., Stone, E. A., Cappa, C. D., Grassian, V. H., Prather, K. A., Tivanski, A. V. (**2022**). Size-Dependent Morphology, Composition, Phase State, and Water Uptake of Nascent Submicrometer Sea Spray Aerosols during a Phytoplankton Bloom. *ACS Earth Space Chem., 6(1),* 116–130. Article
4. ** Shohel, M., Ray, K. K., Tivanski, A. V., McAdams, N. E., Bancroft, A. M., Cramer, B. D., Forbes, T. Z. (**2022**). Nanomechanical Variability in the Early Evolution of Vertebrate Dentition. *Sci Rep, Nature Portfolio*, *12*, 10203. Article
5. ** Crocker, D. R., ^Kaluarachchi, C. P., Cao, R., Dinasquet, J., Franklin, E. B., Morris, C. K., Amiri, S., Petras, D., Nguyen, T., Torres, R. R., Martz, T. R., Malfatti, F., Goldstein, A. H., Tivanski, A. V., Prather, K. A., Thiemens, M. H. (**2022**). Isotopic Insights into Organic Composition Differences between Supermicron and Submicron Sea Spray Aerosol. *Environ. Sci. Technol., 56(14)*, 9947-9958. Article
6. ** Sauer, J. S., Mayer, K. J., Lee, C., Alves, M. R., Amiri, S., Bahaveolos, C. J., Franklin, E. B., Crocker, D. R., Dang, D., Dinasquet, J., Garofalo, L. A., ^Kaluarachchi, C. P., Kilgour, D. B., Mael, L. E., Mitts, B. A., Moon, D. R., Moore, A. N., Morris, C. K., Mullenmeister, C. A., Ni, C.-M., Pendergraft, M. A., Petras, D., Simpson, R. M. C., Smith, S., Tumminello, P. R., Walker, J. L., DeMott, P. J., Farmer, D. K., Goldstein, A. H., Grassian, V. H., Jaffe, J. S., Malfatti, F., Martz, T. R., Slade, J. H., Tivanski, A. V., Bertram, T. H., Cappa, C. D., Prather, K. A. (**2022**). The Sea Spray Chemistry and Particle Evolution study (SeaSCAPE): Overview and Experimental Methods. *Environ. Sci.: Processes Impacts*, *24*, 290-315. Article
7. * ^Madawala, C. K., ^Lee, H. D., ^Kaluarachchi, C. P., Tivanski, A. V. (**2021**). Probing the Water Uptake and Phase State of Individual Sucrose Nanoparticles Using Atomic Force Microscopy. *ACS Earth Space Chem., 5(10),* 2612–2620. Letter
8. ** Lamb, M. C., ^Kaluarachchi, C. P., ^Lansakara, T. I., Mellentine, S. Q., †Lan, Y., Tivanski, A. V., Tootle, T. L. (**2021**). Fascin Limits Myosin Activity Within Drosophila Border Cells to Control Substrate Stiffness and Promote Migration. *eLife* 2021, 10, e69836. Article
9. *** Tiras, K. S., ^Rupasinghe, T., Wohlgenannt, M., Tivanski, A. V. (**2021**). Thermal Annealing Effect on the Surface Morphology and Efficiency of Photovoltaic Cells. *Journal of Polytechnic,* doi:10.2339/politeknik.942188. Letter.
10. ** Hu, J., Wang, Z., Miszuk, J. M., Zhu, M.; ^Lansakara, T. I., Tivanski, A. V., Banas, J. A., Sun, H. (**2021**). Vanillin-bioglass cross-linked 3D porous chitosan scaffolds with strong osteopromotive and antibacterial abilities for bone tissue engineering. *Carbohydr Polym*, *271*, 118440. Article
11. * ^Lee, H. D., Tivanski, A. V. (**2021**). Atomic Force Microscopy: An Emerging Tool in Measuring the Phase State and Surface Tension of Individual Aerosol Particles. *Annual Review of Physical Chemistry,*

72, 235-252. Article

12. * ^Kaluarachchi, C. P., ^Lee, H. D., †Lan, Y., ^Lansakara, T. I., Tivanski, A. V. (**2021**). Surface Tension Measurements of Aqueous Liquid–Air Interfaces Probed with Microscopic Indentation. *Langmuir, 37*, 2457–2465. Article

13. *** ^Tiba, A., †Conway, M. T., †Hill, C. S., Swenson, D. C., MacGillivray, L. R., Tivanski, A. V. (**2021**). Mechanical Rigidity of a Shape-memory Metal-organic Framework increases by Crystal Downsizing. *Chem. Commun.*, *57*, 89-92. Letter

14. ** Bell, K. J., ^Lansakara, T. I., Crawford, R. A., Monroe, B., Salem, A. K., Tivanski, A.V., Stevens, L. L. (**2021**). Mechanical cues protect against silica nanoparticle exposure in SH-SY5Y neuroblastoma. *Toxicology in Vitro*, *70*, 105031. Article

15. *** ^Lansakara, T. I., Tong, F., Bardeen, C. J., Tivanski, A. V. (**2020**). Mechanical Properties and Photomechanical Fatigue of Macro- and Nanodimensional Diarylethene Molecular Crystals. *Nano Lett.*, *20*, 6744–6749. Letter

16. * ^Lee, H. D., ^Wigley, S., Lee, C., Or, V. W., Hasenecz, E. S., Stone, E. A., Grassian, V. H., Prather, K. A., Tivanski, A. V. (**2020**). Physicochemical Mixing State of Sea Spray Aerosols: Morphologies Exhibit Size Dependence. *ACS Earth Space Chem.*, *4,* 1604-1611. Article.

17. * ^Lee, H. D., ^Morris, H. S., Laskina, O., Sultana, C. M., Lee, C., Jayarathne, T., Cox, J., Wang, X., Hasenecz, E. S., DeMott, P. J., Bertram, T. H., Cappa, C. D., Stone, E. A., Prather, K. A., Grassian, V. H., Tivanski, A. V. (**2020**). Organic Enrichment, Physical Phase State, and Surface Tension Depression of Nascent Core-Shell Sea Spray Aerosols During Two Phytoplankton Blooms. *ACS Earth Space Chem.*, *4*, 650-660. Article.

18. ** Kruger, T. M., Bell, K. J., ^Lansakara, T. I., Tivanski, A. V., Doorn, J. A., Stevens, L. L. (**2020**). A Soft Mechanical Phenotype of SH-SY5Y Neuroblastoma and Primary Human Nerons is Resilient to Oligomeric AB(1-42) Injury. *ACS Chem. Neurosci.*, *11(6)*, 840-850. Article

19. ** McGowan, S. E., ^Lansakara, T. I., Mccoy, D. M., Zhu, L., Tivanski, A. V. (**2020**). Platelet-Derived Growth Factor-α and Neuropilin-1 Mediate Lung Fibroblast Response to Rigid Collagen Fibers. *Am J Respir Cell Mol Biol*, *62(4)*, 454-465. Article

20. *** ^Lansakara, T. I., ^Morris, H., Singh, P., Kohen, A., Tivanski, A. V. (**2020**). Rigid double-stranded DNA Linkers for Single Molecule Enzyme-Drug Interaction Measurements Using Molecular Recognition Force Spectroscopy. *Langmuir*, *36*, 4174-4183. Article

21. *** ^Ray, K. K., Campillo-Alvarado, G., Morales-Rojas, H., Höpfl, H., MacGillivray, L. R., Tivanski, A. V. (**2020**). Semiconductor Cocrystals Based on Boron: Generated Electrical Response with pi-Rich Aromatic Molecules. *Cryst. Growth Des.*, *20*, 3-8. Communication

22. * ^Ray, K. K., ^Lee, H. D., †Gutierrez, M., †Chang, F., Tivanski, A. V. (**2019**). Correlating 3D Morphology, Phase State and Viscoelastic Properties of Individual Substrate-Deposited Particles. *Anal. Chem.*, *91*, 7621-7630. Article

23. * ^Lee, H. D., ^Kaluarachchi, C. P., Hasenecz, E. S., †Zhu, J. Z., †Popa, E., Stone, E. A., Tivanski, A. V. (**2019**). Effect of Dry or Wet Substrate Deposition on the Organic Volume Fraction of Core-shell Aerosol Particles. *Atmos. Meas. Tech., 12*, 2033-2042. Article

24. ** Kruger, T. M., Bell, K. J., ^Lansakara, T. I., Tivanski, A. V., Doorn, J. A., Stevens, L. L. (**2019**). Reduced Extracellular Matrix Stiffness Prompts SH-SY5Y Cell Softening and Actin Turnover to Selectively Increase Aβ(1-42) Endocytosis. *ACS Chem. Neurosci.*, *10(3)*, 1284-1293. Article

25. *** Hutchins, K. M., ^Rupasinghe, T. P., Oburn, S. M., ^Ray, K. K., Tivanski, A. V., MacGillivray, L. R. (**2019**). Remarkable Decrease in Stiffness of Aspirin Crystals Upon Reducing Crystal Size to Nanoscale Dimensions via Sonochemistry. *CrystEngComm*, *21*, 2049–2052. Communication

26. ** Hasenecz, E. S., ^Kaluarachchi, C. P., ^Lee, H. D., Tivanski, A. V., Stone, E. A. (**2019**). Saccharide Transfer to Sea Spray Aerosol Enhanced by Surface Activity, Calcium, and Protein Interactions. *ACS Earth Space Chem.*, *3(11)*, 2539-2548. Article

27. *** ^Tiba, A., Tivanski, A. V., MacGillivray, L. R. (**2019**). Size-Dependent Mechanical Properties of a Metal-Organic Framework: Increase in Flexibility of ZIF-8 by Crystal Downsizing. *Nano Lett.*, *19*, 6140-6143. Letter

28. *** Or, V. W., Estillore, A. D., Tivanski, A. V., Grassian, V. H. (**2018**). Lab on a Tip: Atomic Force Microscopy - Photothermal Infrared Spectroscopy of Atmospherically Relevant Organic/Inorganic Aerosol Particles in the Nanometer Size Range. *Analyst*, *143*, 2765-2774. Article

29. ** Kruger, T. M., Givens, B. E., ^Lansakara, T. I., Bell, K. J., Mohapatra, H., Salem, A. K., Tivanski, A. V., Stevens, L. L. (**2018**). Mechanosensitive Endocytosis of High-Stiffness, Submicron Microgels in Macrophage and Hepatocarcinoma Cell Lines. *ACS Appl. Bio Mater.*, *1*, 1254–1265. Article

30. * ^Lee, H. D., ^Ray, K. K., Tivanski, A. V. (**2017**). Solid, Semisolid, and Liquid Phase States of Individual Submicrometer Particles Directly Probed Using Atomic Force Microscopy. *Anal. Chem.*, *89(23)*, 12720-12726. Article

31. *** ^Lee, H. D., Estillore, A. D., ^Morris, H. S., ^Ray, K. R., †Alejandro, A., Grassian, V. H., Tivanski, A. V. (**2017**). Direct Surface Tension Measurements of Individual Sub-Micrometer Particles Using Atomic Force Microscopy. *J. Phys. Chem. A*, *121(43)*, 8296-8305. Article

32. ** Mohapatra, H., Kruger, T. M., ^Lansakara, T. I., Tivanski, A. V., Alejandro, A., Stevens, L. L. (**2017**). Core and surface microgel mechanics are differentially sensitive to alternative crosslinking concentrations. *Soft Matter*, *13*, 5684-5695. Article

33. *** Estillore, A. D., ^Morris, H. S., Or, V. W., ^Lee, H. D., Alves, M. R., Marciano, M. A., Laskina, O., Qin, Z., Tivanski, A. V., Grassian, V. H. (**2017**). Linking hygroscopicity and the surface microstructure of model inorganic salts, simple and complex carbohydrates, and authentic sea spray aerosol particles. *Phys. Chem. Chem. Phys., 19(31)*, 21101-21111. Article

34. ** Cochran, R. E., Laskina, O., Trueblood, J. V., Estillore, A. D., ^Morris, H. S., Jayarathne, T., Sultana, C. M., Lee, C., Lin, P., Laskina, J., Laskin, A., Dowling, J., Qin, Z., Cappa, C. D., Bertram, T. H., Tivanski, A. V., Stone, E. A., Prather, K. P., Grassian, V. H. (**2017**). Molecular Diversity of Sea Spray Aerosol Particles: Impact of Ocean Biology on Particle Composition and Hygroscopicity. *Chem*, *2(5)*, 655–667. Article

35. ** Jayarathne, T., Sultana, C. M., Lee, C., Malfatti, F., Cox, J. L., Pendergraft, M. A., Moore, K. A., Azam, F., Tivanski, A. V., Cappa, C. D., Bertram, T. H., Grassian, V. H., Prather, K. A., Stone, E. A. (**2016**). Enrichment of Saccharides and Divalent Cations in Sea Spray Aerosol During Two Phytoplankton Blooms. *Environ. Sci. Technol.*, *50(21)*, 11511-11520. Article

36. ** Peter, K. T., Vargo, J. D., ^Rupasinghe, T. P., De Jesus, A., Tivanski, A. V., Sander, E. A., Myung, N. V., Cwiertny, D. M. (**2016**). Synthesis, Optimization, and Performance Demonstration of Electrospun Carbon Nanofiber–Carbon Nanotube Composite Sorbents for Point-of-Use Water Treatment. *ACS Appl. Mater. Interfaces*, *8(18)*, 11431-11440. Article

37. *** ^Morris, H. S., Estillore, A. D., Laskina, O., Grassian, V. H., Tivanski, A. V. (**2016**). Quantifying the Hygroscopic Growth of Individual Submicrometer Particles with Atomic Force Microscopy. *Anal. Chem.*, *88(7)*, 3647-3654. Article

38. ** Singh, P., ^Morris, H. S., Tivanski, A. V., Kohen, A. (**2015**). A calibration curve for immobilized dihydrofolate reductase activity assay. *Data in Brief*, *4*, 19–21. Letter

39. ** Singh, P., ^Morris, H. S., Tivanski, A. V., Kohen, A. (**2015**). Determination of concentration and activity of immobilized enzyme. *Anal. Biochem.*, *484*, 169–172. Article

40. *** ^Morris, H. S., Grassian, V. H., Tivanski, A. V. (**2015**). Humidity-Dependent Surface Tension Measurements of Individual Inorganic and Organic Submicrometre Liquid Particles. *Chemical Science*, *6*, 3242-3247. Edge Article

41. *** ^Rupasinghe, T. P., Kester, K. M., Bandaranayake, B. S., ^Ghorai, S., #Karunatilaka, C., Bučar, D. K., Swenson, D. C., Arnold, M. A., MacGillivray, L. R., Tivanski, A. V. (**2015**). Mechanical properties of a series of macro- and nanodimensional organic cocrystals correlate with atomic polarizability. *J. Am.*

Chem. Soc., *137*, 12768–12771. Communication

42. *** Laskina, O., ^Morris, H. S., Grandquist, J. R., Qin, Z., Stone, E. A., Tivanski, A. V., Grassian, V. H. (**2015**). Size Matters in the Water Uptake and Hygroscopic Growth of Atmospherically Relevant Multicomponent Aerosol Particles. *J. Phys. Chem. A*, *119(19)*, 4489-4497. Article

43. *** Laskina, O., ^Morris, H. S., Grandquist, J. R., Estillore, A. D., Stone, E. A., Grassian, V. H., Tivanski, A. V. (**2015**). Substrate-Deposited Sea Spray Aerosol Particles: Influence of Analytical Method, Substrate, and Storage Conditions on Particle Size, Phase, and Morphology. *Environ. Sci. Technol.*, *49(22)*, 13447–13453. Article

44. **Ryder, O. S., Campbell, N. R., ^Morris, H. S., Forestieri, S., Ruppel, M. J., Cappa, C., Tivanski, A., Prather, K., Bertram, T. H. (**2015**). Role of Organic Coatings in Regulating N_2O_5 Reactive Uptake to Sea Spray Aerosol. *J. Phys. Chem. A*, *119(48)*, 11683-11692. Article

45. ** Schill, S. R., Collins, D. B., Lee, C., ^Morris, H. S., Novak, G. A., Prather, K. A., Quinn, P. K., Sultana, C. M., Tivanski, A. V., Zimmermann, K., Cappa, C. D., Bertram, T. H. (**2015**). The Impact of Aerosol Particle Mixing State on the Hygroscopicity of Sea Spray Aerosol. *ACS Central Science*, *1(3)*, 132-141. Article

46. *** ^Ghorai, S., Wang, B., Tivanski, A. V., Laskin, A. (**2014**). Hygroscopic Properties of Internally Mixed Particles Composed of NaCl and Water Soluble Organic Acids. *Environ. Sci. Technol*, *48(4)*, 2234-2241. Article

47. *** Hutchins, K. M., ^Rupasinghe, T. P., ^Ditzler, L. R., Swenson, D. C., Sander, J. R., Baltrusaitis, J., Tivanski, A. V., MacGillivray, L. R. (**2014**). Nanocrystals of a Metal-Organic Complex Exhibit Remarkably High Conductivity that Increases in a Single-Crystal-to-Single-Crystal Transformation. *J. Am. Chem. Soc.*, *136(19)*, 6778-6781. Communication

48. *** ^Ghorai, S., Sumrak, J. C., Hitchins, K. M., Bučar, D. K., Tivanski, A. V., MacGillivray, L. R. (**2013**). From co-Crystals to Functional Thin Films: Photolithography using [2+2] photodimerization. *Chemical Science*, *4(11)*, 4304-4308. Edge Article

49. ** Wang, B., Laskin, A., Roedel, T., Gilles, M. K., Moffet, R. C., Tivanski, A. V., Knopf, D. A. (**2012**). Heterogeneous ice nucleation and water uptake by field collected atmospheric particles below 273 K. *J. Geophys. Res.*, *117*, D00V19. Article

50. *** ^Ditzler, L. R., Sen, A., †Gannon, M., Kohen, A., Tivanski, A. V. (**2011**). Self-assembled Enzymatic Monolayer Directly Bound to a Gold Surface: Activity and Molecular Recognition Force Spectroscopy Studies. *J. Am. Chem. Soc.*, *133(34)*, 13284-13287. Communication

51. ** Kapadia, P. P., ^Ditzler, L. R., Baltrusaitis, J., Swenson, D. C., Tivanski, A. V., Pigge, C. F. (**2011**). Semiconducting Organic Assemblies Prepared from Tetraphenylethylene Tetracarboxylic Acid and Bis(pyridine)s via Charge-Assisted Hydrogen Bonding. *J. Am. Chem. Soc.*, *133(22)*, 8490-8493. Communication

52. *** #Karunatilaka, C., Bučar, D. K., ^Ditzler, L. R., Friščić, T., MacGillivray, L. R., Tivanski, A. V. (**2011**). Softening and Hardening of Macro- and Nano-Sized Organic Cocrystals in a Single-Crystal Transformation. *Angew. Chem. Int. Ed.*, *50(37)*, 8642-8646. Communication

53. * ^Ghorai, S., Laskin, A., Tivanski, A. V. (**2011**). Spectroscopic Evidence of Keto−Enol Tautomerism in Deliquesced Malonic Acid Particles. *J. Phys. Chem. A*, *115(17)*, 4373-4380. Article

54. *** Hamilton, T. D., Bučar, D. K., Baltrusaitis, J., Flanagan, D. R., Li, Y., ^Ghorai, S., Tivanski, A. V., MacGillivray, L. R. (**2011**). Thixotropic Hydrogel Derived from a Product of an Organic Solid-State Synthesis: Properties and Densities of Metal-Organic Nanoparticles. *J. Am. Chem. Soc.*, *133(10)*, 3365-3371. Article

55. * Galgano, J. J., #Karunatilaka, C., Rethwisch, D. J., Tivanski, A. V. (**2010**). Atomic Force Microscopy Study of Photoreversible Nanoscale Surface Relief Grating Patterns on Side Chain Dendritic Polyester Thin Films. *Colloids Surf. A*, *360(1-3)*, 167-174. Article

56. * ^Ditzler, L. R., #Karunatilaka, C., Donuru, V. R., Liu, H., Tivanski, A. V. (**2010**).

ElectromechanicalProperties of Self-Assembled Monolayers of Tetrathiafulvalene Derivatives Studied by Conducting Probe Atomic Force Microscopy. *J. Phys. Chem. C*, *114*, 4429-4435. Article

57. * ^Ghorai, S., Tivanski, A. V. (**2010**). Hygroscopic Behavior of Individual Submicrometer Particles Studied by X-ray Spectromicroscopy. *Anal. Chem., 82*, 9289-9298. Article

58. ** Moffet, R. C., Henn, T. R., Tivanski, A. V., Hopkins, R. J., Desyaterik, Y., Kilcoyne, A.L.D, Tyliszczak, T., Fast, J., Barnard, J., Shutthanandan, V., Cliff, S. S., Perry, K. D., Laskin, A., Gilles, M. K. (**2010**). Microscopic Characterization of Carbonaceous Aerosol Particle Aging in the Outflow from Mexico City. *Atmos. Chem. Phys.*, *10(3)*, 961-976. Article

59. ** Zaveri, R. A., Berkowitz, C. M., Brechtel, F. J., Gilles, M. K., Hubbe, J. M., Jayne, J. T., Kleinman, L. I., Laskin, A., Madronich, S., Onasch, T. B., Pekour, M. S., Springston, S. R., Thornton, J. A., Tivanski, A. V., Worsnop, D. R. (**2010**). Nighttime Chemical Evolution of Aerosol and Trace Gases in a Power Plant Plume: Implications for Secondary Organic Nitrate and Organosulfate Aerosol Formation, NO_3 Radical Chemistry, and N_2O_5 Heterogeneous Hydrolysis. *J. Geophys. Res.*, *115*, *D12304*, 1-22. Article

60. ** Caster, A. G., Kowarik, S., Schwartzberg, A. M., Leone, S. R., Tivanski, A. V., Gilles, M. K. (**2010**). Quantifying Reaction Spread and X-ray Exposure Sensitivity in Hydrogen Silsesquioxane Latent Resist Patterns with X-ray Spectromicroscopy. *J. Vac. Sci. Technol. B*, *28(6)*, 1304-1313. Article

61. ** Moffet, R. C., Desyaterik, Y., Hopkins, R. J., Tivanski, A. V., Gilles, M. K., Shutthanandan, V., Molina, L. T., Gonzales, R. A., Johnson, K. S., Mugica, V., Molina, M. J., Laskin, A., Prather, K. A. (**2008**). Characterization of Aerosols Containing Zn, Pb, and Cl from an Industrial Region of Mexico City. *Environ. Sci. Technol.*, *42*, 7091-7097. Article

62. ** Hopkins, R. J., Desyaterik, Y., Tivanski, A. V., Berkowitz, C. M., Gilles, M. K., Laskin, A. (**2008**). Chemical Speciation of Sulfur in Marine Cloud Droplets and Particles: Analysis of Individual Particles from the Marine Boundary Layer over the California Current. *J. Geophys. Res.*, *113*, *D04209*, 1-15. Article

63. ** Runge, M. B., Lipscomb, C. E., Ditzler, L. R., Mahanthappa, M. K., Tivanski, A. V., Bowden, N. B. (**2008**). Investigation of the Assembly of Comb Block Copolymers in the Solid State. *Macromolecules*, *41*, 7687-7694. Article

64. * Tivanski, A. V., Li, J. K., Walker, G. C. (**2008**). Pressure-Induced Restructuring of a Monolayer Film Nanojunction Produces Threshold and Power Law Conduction. *Langmuir*, *24*, 2288-2293. Letter

65. ** Hopkins, R. J., Tivanski, A. V., Marten, B. D., Gilles, M. K. (**2007**). Chemical Bonding and Structure of Black Carbon Reference Materials and Individual Carbonaceous Atmospheric Aerosols. *J. Aerosol Science*, *38*, 573-591. Article

66. ** Hopkins, R. J., Lewis, K., Desyaterik, Y., Wang, Z., Tivanski, A. V., Arott, W. P., Laskin, A., Gilles, M. K. (**2007**). Correlating Optical, Chemical and Physical Properties of Biomass Burn Aerosols. *Geophys. Res. Lett.*, *34*, *L18806*, 1-5. Letter

67. * Tivanski, A. V., Hopkins, R. J., Gilles, M. K. (**2007**). Oxygenated Interface on Biomass Burn Tar Balls Determined by Single Particle Scanning Transmission X-ray Microscopy. *J. Phys. Chem. A*, *111*, 5448-5458. Article

68. ** Michelson, H. A., Tivanski, A. V., Gilles, M. K., van Poppel, L. H., Dansson, M. A., Buseck, P. R. (**2007**). Particle Formation from Pulsed Laser Irradiation of Soot Aggregates Studied with a Scanning Mobility Particle Sizer, a Transmission Electron Microscope, and a Scanning Transmission X-ray Microscope. *Appl. Opt.*, *46*, 959-977. Article

69. * Olynick, D., Tivanski, A. V., Gilles, M. K., Tyliszczak, T., Salmassi, F., Liddle, A., Liang, K., Leone, S. R. (**2006**). Scanning X-ray Microscopy Investigations into the Electron Beam Exposure Mechanism of Hydrogen Silsesquioxane Resists. *J. Vac. Sci. Technol. B*, *24*, 3048-3054. Article

70. * Tivanski, A. V., Borguet, E., Liu, H., Walker, G. C., Waldeck, D. H. (**2005**). Conjugated Thiol Linker for Enhanced Electrical Conduction of Gold-Molecule Contacts. *J. Phys. Chem. B*, *109*, 5398-5402. Letter

71. * Tivanski, A. V., Walker, G. C. (**2005**). Ferrocenylundecanethiol Self-Assembled Monolayer Charging

Correlates with Negative Differential Resistance Measured by Conducting Probe Atomic Force Microscopy. *J. Am. Chem. Soc.*, *127*, 7647-7653. Article

72. * Tivanski, A. V., Bemis, J. E., Akhremitchev, B. B., Liu, H., Walker, G. C. (**2003**). Adhesion Forces in Conducting Probe Atomic Force Microscopy. *Langmuir*, *19*, 1929-1934. Article

73. * Tivanski, A. V., Wang, C., Walker, G. C. (**2003**). Vibrational Mode Coupling to Ultrafast Electron Transfer in $[(CN)_5OsCNRu(NH_3)_5]$- Studied by Femtosecond Infrared Spectroscopy. *J. Phys. Chem. A*, *107*, 9051-9058. Article

Refereed Book Chapters

1. * ^Lee, H. D., Tivanski, A. V. (**2022**). Atomic Force Microscopy of Individual Particles. *Microanalysis of Atmospheric Particles: Techniques and Applications in Climate Change and Air Quality*. AGU Books.

2. * ^Lee, H. D., ^Ray, K. R., Tivanski, A. V. (**2018**). Directly Probing the Phase States and Surface Tension of Individual Submicrometer Particles Using Atomic Force Microscopy. *Multiphase Environmental Chemistry in the Atmosphere*. ACS eBook.

3. *** Moffet, R. C., Tivanski, A. V., Gilles, M. K. (**2011**). Scanning Transmission X-ray Microscopy: Applications in Atmospheric Aerosol Research. R. Signorell & J. P. Reid (Eds.), *Fundamentals and Applications of Aerosol Spectroscopy*. Taylor and Francis Books, Inc.

Conference Proceeding

1. * Tivanski, A. V. (**2012**). Physical, Chemical and Hygroscopic Properties of Submicrometer Particles Studied using X-ray Spectro-Microscopy and Atomic Force Microscopy. *Microscopy and Microanalysis*, *18*, 848-849.

2. * Tivanski, A. V., Walker, G. C. (**2004**). The Role of Adhesion Forces in Nanoscale Measurements of the Conductive Properties of Organic Surfaces Using Conductive Probe AFM. *Proc. SPIE*, *5513*, 14.

Invited Lectures and Conference Presentations

Conference Presentations

2023	Fall 2023 ACS National Meeting, *Effects of Atmospheric Aging and Wind Speed on Physicochemical Properties of Nascent Sea Spray Aerosols*, San Francisco. Presenters/Authors: Tivanski, A. V.
2023	Spring 2023 ACS National Meeting, *Single Particle Atomic Force Microscopy*, Indianapolis. Presenters/Authors: Tivanski, A. V.
2022	Third Middle-Eastern Materials Science Conference (MEMS2022), *Mechanical Properties of Macro- and Nano-Dimensional Crystalline Solids*, Abu Dhabi, United Arab Emirates. Presenters/Authors: Tivanski, A. V.
2022	25th International Conference on the Chemistry of the Organic Solid State (ICCOSS XXV), *co-organizer, chair, and session overview presenter for session on Crystal Surfaces and Interfaces*, Ohrid, North Macedonia. Presenters/Authors: Tivanski, A. V.
2022	25th International Conference on the Chemistry of the Organic Solid State (ICCOSS XXV), *The Effect of Nanosizing on Mechanical Properties of Organic Crystalline Solids*, Ohrid, North Macedonia. Presenters/Authors: Tivanski, A. V.
2022	NSF CCI Center for Aerosol Impacts on Chemistry of the Environment, 9th Annual Meeting, *Impact of Atmospheric Oxidation on Physical-Chemical Properties of Nascent Sea Spray Aerosol*, San Diego. Presenters/Authors: Tivanski, A. V.
2022	Spring 2022 ACS National Meeting, *Physical-Chemical Properties of Individual Submicrometer Aerosols*, San Diego. Presenters/Authors: Tivanski, A. V.

2021 Pacifichem 2021, *Phase State, Viscoelastic Properties and Surface Tension of Individual Submicrometer Aerosol Particles*, Honolulu. Presenters/Authors: Tivanski, A. V.

2020 Pitcon, *Advances in Single Particle Atomic Force Microscopy*, Chicago Presenters/Authors: Tivanski, A. V.

2020 Microscopy and Microanalysis Virtual Meeting, *Single Particle Atomic Force Microscopy*, virtual. Presenters/Authors: Tivanski, A. V.

2019 Fall 2019 ACS National Meeting, *Study of 3D Morphology, Phase State and Viscoelastic Properties of Individual Substrate-deposited Particles*, San Diego. Presenters/Authors: Tivanski, A. V.

2018 NSF CCI Center for Aerosol Impacts on Chemistry of the Environment, 6th Annual Meeting, *Directly Identifying the Phase States of Individual Sea Spray Aerosol Particles and Beyond*, San Diego. Presenters/Authors: Tivanski, A. V.

2018 NSF CCI Center for Aerosol Impacts on Chemistry of the Environment, 5th Annual Meeting, *Innovations in Single Particle Atomic Force Microscopy*, San Diego. Presenters/Authors: Tivanski, A. V.

2017 254th ACS National Meeting, *From Sea Spray Aerosol to Clouds: Surface Tension from Sub- to Super-saturated Regimes of Individual Submicrometer Particles*, Washington. Presenters/Authors: Tivanski, A. V.

2016 NSF CCI Center for Aerosol Impacts on Chemistry of the Environment, 3rd Annual Meeting, *Probing Surface Tension of Individual Submicrometer SSA Particles at Sub-Saturated Relative Humidity*, San Diego. Presenters/Authors: Tivanski, A. V.

2016 251st ACS National Meeting, *Linking Size-dependent 3-D Morphology and Physicochemical Properties of Substrate-deposited Sea Spray Aerosol Particles*, San Diego. Presenters/Authors: Tivanski, A. V.

2016 Energy and Movement in Coherent Chemical Systems, *Study of Mechanical Properties of Macro- and Nano-Dimensional Solids*, Telluride. Presenters/Authors: Tivanski, A. V.

2015 Pacifichem 2015, *Humidity-dependent Surface Tension Measurements of Individual Submicrometer Liquid Particles*, Honolulu. Presenters/Authors: Tivanski, A. V.

2015 Pacifichem 2015, *Size-dependent Mechanical Properties of Organic Cocrystals*, Honolulu. Presenters/Authors: Tivanski, A. V.

2014 Pittcon 2014, *Chemical Microscopy of Individual Submicrometer particles*, Chicago

2013 2013 MRS Fall Meeting, *Mechanical Properties and Reactivity of Organic Nanocrystals*, Boston. Presenters/Authors: Tivanski, A. V.

2013 Gordon Research Conferences, *Atomic Force Microscopy Study of Mechanical and Electrical Properties of Photo-reactive Organic Nano-cocrystals*, Clusters, Nanocrystals & Nanostructures, South Hadley. Presenters/Authors: Tivanski, A. V.

2013 Gordon Research Conferences, *Chemical and Spatial Microscopy of Individual Submicrometer Particles*, Atmospheric Chemistry, West Dover. Presenters/Authors: Tivanski, A. V.

2012 Microscopy and Microanalysis Meeting, *Physical, Chemical and Hygroscopic Properties of Submicrometer Particles Studied using X-ray Spectro-Microscopy and Atomic Force Microscopy*, Phoenix. Presenters/Authors: Tivanski, A. V.

2012 243rd ACS National Meeting, *Spectromicroscopy Study of Chemical Transformation and Water Uptake on Individual Submicrometer Particles*, San Diego. Presenters/Authors: Tivanski, A. V.

2010 Pacifichem 2010, *Hygroscopic Properties and Chemical Transformations of Aerosols Studied by Single Particle Scanning Transmission X-ray Microscopy*, Honolulu. Presenters/Authors: Tivanski, A. V.

2010 240th ACS National Meeting, *Water Uptake and Chemical Transformations of Aerosols Studied by Single Particle Scanning Transmission X-ray Microscopy*, Boston. Presenters/Authors: Tivanski, A. V.

2009 44th Midwest Regional ACS Meeting, *Hygroscopic Properties and Phase Transitions of Aerosols Studied by Single Particle Scanning Transmission X-Ray Microscopy*, Iowa City. Presenters/Authors: Tivanski, A. V.

2009 237th ACS National Meeting, *Conducting Probe Atomic Force Microscopy Study of Electrical Conduction and Redox Transitions of Molecular Junctions*, Salt Lake City. Presenters/Authors: Tivanski, A. V.

2008 American Physical Society Meeting, *Chemical and Spatial Microscopy of Individual Organic Aerosols*, New Orleans. Presenters/Authors: Tivanski, A. V.

Invited Lectures

November 2022 *Single Particle Atomic Force Microscopy*, Department of Chemistry, Hamline University. Presenters/Authors: Tivanski, A. V.

September 2022 *Atomic Force Microscopy: An Emerging Experimental Tool in Environmental Chemistry and Materials Science*, Department of Chemistry, University of Iowa. Presenters/Authors: Tivanski, A. V.

April 2022 *Atomic Force Microscopy: An Emerging Experimental Tool in Environmental Chemistry and Materials Science*, Department of Mechanical Engineering, Tufts University. Presenters/Authors: Tivanski, A. V.

2021 *Recent Advances in Single Particle Atomic Force Microscopy*, Department of Chemistry, Ohio State University. Presenters/Authors: Tivanski, A. V.

2020 *Recent Advances in Single Particle Atomic Force Microscopy*, Department of Chemistry, University of Wisconsin–Madison. Presenters/Authors: Tivanski, A. V.

2020 *Recent Advances in Single Particle Atomic Force Microscopy*, Department of Chemistry, Purdue University. Presenters/Authors: Tivanski, A. V.

2020 *Physical and Chemical Properties of Macro- and Nano-dimensional Solids and Interfaces*, Department of Chemistry, University of Iowa. Presenters/Authors: Tivanski, A. V.

2013 *Chemical Microscopy of Individual Submicrometer Particles*, Department of Chemistry, University of Missouri-Columbia. Presenters/Authors: Tivanski, A. V.

2013 *Chemical Microscopy of Individual Submicrometer Particles*, Department of Chemistry, University of Nebraska. Presenters/Authors: Tivanski, A. V.

2013 *Chemistry Microscopy of Individual Submicrometer Particles*, Department of Chemistry, UI-Chicago. Presenters/Authors: Tivanski, A. V.

2012 *Assessing Nanoelasticity in Organic Nanocrystal-to-Nanocrystal Photochemical Transformations*, Department of Chemistry, University of Nebraska-Lincoln. Presenters/Authors: Tivanski, A. V.

2012 *Assessing Nanoelasticity in Organic Nanocrystal-to-Nanocrystal Photochemical Transformations*, Department of Chemistry, UC Riverside. Presenters/Authors: Tivanski, A. V.

2008 *Exploring Nanoscale Electromechanical Phenomena in Molecular Junctions*, Monmouth College. Presenters/Authors: Tivanski, A. V.

SERVICE

Department

2008 - present	Graduate Students Committees (Comprehensive exams & dissertations, e.g., for the past several years, typically 25-30 per year), Member/Chair
2017 - present	Maintain/train/aid shared atomic force microscopy instrumentation studies for several research groups in the Department
2022 - present	Graduate Recruiting and Admissions Committee, co-Chair
2022	Promotion and Tenure Committee, Lead
2022 - 2023	Faculty & Staff Development Committee, Member
2021 - 2022	Probationary Faculty Review of two tenure-tracked faculty, co-Chair
2021 - 2022	Graduate Recruiting and Admissions Committee, co-Chair
2021 - 2022	Faculty & Staff Development Committee, Member
2019 - 2020	Physical Chemistry Faculty Search Committee, Chair
2015 - 2020	Graduate Students Admission Committee, Member
2019	Probationary Faculty Review, Chair
2019	Shared Instrumentation and Equipment Committee, Member
2018 - 2019	Physical Chemistry Faculty Search Committee, Member
2018	Salary Committee, Member
2016 - 2018	Shared Instrumentation and Equipment Committee, Chair
2016	Hiring Plan Committee, Member
2015	Graduate Students Awards and Fellowships Committee, Member
2014	Colloquium and Named Seminars Committee, Member
2014	Shared Instrumentation and Equipment Committee, Member
2014	Undergraduate Awards Committee, Member
2013 - 2014	Adjunct Faculty Review
2012 - 2014	Shared Instrumentation Committee
2013	Undergraduate Awards Committee, Member
2012	Chemical Education Faculty Search Committee, Member
2009 - 2011	Graduate Students Admission Committee, Member
2010	Inorganic Chemistry Faculty position search committee, Member
2009 - 2010	Undergraduate Awards Committee, Chair
2008	Undergraduate Awards Committee, Member

College/University

2022 - 2023	Faculty Assembly, Chemistry Representative
2022 - 2023	Fulbright U.S. Scholar Program Committee, International Programs, University of Iowa, member
2022	University of Iowa, CLAS, Department of History Review Committee, member
2021 - 2022	Faculty Assembly, Chemistry Representative
2014 - present	Graduate Students Committees (Comprehensive exams & dissertations for graduate students outside of Chemistry, typically one-two per year), Member
2017 - present	Maintain/train/aid shared atomic force microscopy instrumentation studies for several research groups outside of the Department of Chemistry

2010 - 2022	Secondary Student Training Program, Belin-Blank Center, University of Iowa, research mentor for high school summer students who conduct scientific research in Tivanski group (typically 1-2 students each summer)
2009 - 2013	James F. Jakobsen Graduate Conference, Judge

Profession

2022	2022 ACS Midwest Regional Meeting, Atmospheric Chemistry symposium, co-organizer, and symposium co-Chair
2022	2022 ACS Midwest Regional Meeting, Physical Chemistry symposium, co-organizer, and symposium co-Chair
2020 - present	Journal "*Solids*", open access publishing, MDPI, Editorial Board
2020 - present	Journal "*Molecules*", open access publishing, MDPI, Editorial Board
2022	25th International Conference on the Chemistry of the Organic Solid State (ICCOSS XXV), Session on "Crystal surfaces and interfaces", Ohrid, North Macedonia, co-organizer, and session co-chair
2009 - 2021	NSF-REU research mentor for undergraduate students (typically one-two per year)
2009 - present	Reviewer for various journals (typically 10-15 per year) including Science, Nature communications, Journal of the American Chemical Society, Chemical Communications, ACS Nano, ACS Omega, Nano Letters, Analytical Chemistry, The Journal of Physical Chemistry, The Journal of Physical Chemistry Letters, Langmuir, Journal of Aerosol Science, ACS Earth and Space Chemistry, Environmental Science & Technology, ACS Applied Materials & Interfaces, Crystal Growth & Design.
2018	Gordon Research Conference on Crystal Engineering, Session on "Single-Crystal Processes to Device Applications", discussion session leader
2018	National Science Foundation, Reviewer, Grant Proposals
2017	ACS 254th National Meeting, Session on "Multi-Phase Environmental Chemistry of Aerosols", session co-Chair
2012	American Geophysical Union, Session on Chemical Imaging Analysis of Atmospheric Particles, Co-Organizer/chair
2008 - 2009	American Chemical Society Petroleum Research Fund, Reviewer, Grant Proposals