Stanford



Arturas Vailionis

Senior Research Scientist - Physical, Stanford Nano Shared Facilities

CONTACT INFORMATION

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Bio

BIO

Dr. Arturas Vailionis has been an integral part of Stanford University since 2000, serving as the Senior Staff Scientist at Stanford Nano Shared Facilities (SNSF). Within SNSF, he oversees the X-ray Lab, comprising X-ray Diffraction and X-ray Computed Tomography instruments. Additionally, Dr. Vailionis plays a key role as the core lead of the X-ray and Surface Analysis (XSA) group at SNSF. He also holds a Lecturer position in the Materials Science & Engineering Department and serves as a visiting professor at Kaunas University of Technology in Lithuania.

Dr. Vailionis earned his PhD from the Royal Institute of Technology, where he focused on the growth and structural characterization of high-Tc superconductor thin films. Subsequently, he conducted research in the group of Prof. Joe Greene at the University of Illinois at Urbana Champaign, investigating atomic structure, morphology, and growth kinetics of semiconductor and nitride thin films using X-ray Diffraction and Scanning Probe Microscopy.

Dr. Vailionis research interests encompass a wide range of X-ray scattering techniques aimed at understanding structural properties of materials at the atomic level, particularly focusing on complex oxide thin films and heterostructures. He has coauthored over 100 publications covering topics such as microstructure, electronic, and magnetic properties in thin films. Additionally, his expertise extends to tomographic imaging of inorganic and biological materials.

ACADEMIC APPOINTMENTS

- Senior Research Scientist - Physical, Stanford Nano Shared Facilities

PROFESSIONAL EDUCATION

- M.Sc., Vilnius University, Vilnius, Lithuania , Growth of Oxide Thin Films by Magnetron Sputtering and Characterization (1989)
- Ph. D., Royal Institute of Technology, Stockholm, Sweden , Microstructural Properties of Oxide Thin Films Studied by X-ray Diffraction and Extended X-ray Absorption Fine Structure. (1997)

LINKS

- Google Scholar Profile: https://scholar.google.com/citations?user=HwQQGhgAAAAJ&hl=en

Teaching

COURSES

2026-27

- X-Ray Diffraction Laboratory: MATSCI 162, MATSCI 172 (Spr)

2025-26

- X-Ray Diffraction Laboratory: MATSCI 162, MATSCI 172 (Spr)

2024-25

- X-Ray Diffraction Laboratory: MATSCI 162, MATSCI 172 (Spr)

2023-24

- X-Ray Diffraction Laboratory: MATSCI 162, MATSCI 172, PHOTON 172 (Win)

Publications

PUBLICATIONS

- **Single-pulse x-ray topography of ambient and shock-compressed diamond.** *The Review of scientific instruments*
  Vennari, C. E., Briggs, R., Davis, C. A., Folsom, E. N., Hutchinson, T. M., Katagiri, K., Khaghani, D., Kozioiemski, B. J., Luccioni, D. P., McGuire, C. P., Moghimi, L. Y., Nagler, B., Ræder, et al
  2026; 97 (7)

- **Solid-phase heteroepitaxy of oriented Sb₂Se₃ on GaAs for birefringent thin films** *JOURNAL OF VACUUM SCIENCE & TECHNOLOGY A*
  Xiao, K., Shen, Y., Vailionis, A., Skipper, A. M., Preidl, A., Lindenberg, A. M., Mukherjee, K.
  2026; 44 (2)

- **Reversible Polymorph Switching in IV-VI Thin Films with Epitaxial Control and Birefringence Contrast.** *Nano letters*
  Reddy, P. D., Tara, V., Vailionis, A., Majumdar, A., Mukherjee, K.
  2025

- **Dual Contrast-Enhanced Microcomputed Tomography Uncovers Leaflet-Dependent Patterns of Macrocalcification, Fibrous Extracellular Matrix Remodeling, and Adipocyte Degeneration in Calcific Aortic Stenosis.** *Journal of the American Heart Association*
  El Zeini, M., Tacco, I. R., Jimenez, J. I., Kabiri, A., Vailionis, A., Perrino, J., Burns, D., Jensen, K. C., Burdon, T. A., Shudo, Y., Woo, Y. J., Liang, T., Alexander, et al
  2025: e040616

- **Magnetic Mineralogy in Lunar Mare Basalts and Implications for Paleointensity Retrieval** *JOURNAL OF GEOPHYSICAL RESEARCH-PLANETS*
  Jung, J., Tikoo, S. M., Vaci, Z., Krawczynski, M. J., Solheid, P., Burns, D. H., Vailionis, A.
  2025; 130 (9)

- **Low damping (111) oriented lithium aluminum ferrite thin films for spin wave applications** *APPLIED PHYSICS LETTERS*
  Takana, L., Channa, S., Zheng, X., O'Mahoney, D., Alaei, S., Li, Y., Vailionis, A., Shafer, P., N'Diaye, A. T., Klewe, C., Fisher, I., Suzuki, Y.
  2025; 127 (3)

- **Open-air spray deposition of PCBM/BCP electron transport layer for inverted perovskite solar cells** *MATTER*
  Chen, J. P., Colburn, T. W., Risner-Jamtgaard, J., Vailionis, A., Barnum, A., Golding, M., Carbone, A., Flick, A. C., Dauskardt, R. H.
  2025; 8 (3)

- **Epitaxial Electrodeposition of Zinc on Different Single Crystal Copper Substrates for High Performance Aqueous Batteries.** *Nano letters*
  Xiao, X., Greenburg, L. C., Li, Y., Yang, M., Tzeng, Y. K., Sui, C., Peng, Y., Wu, Y., Zhang, Z., Gao, X., Xu, R., Ye, Y., Zhang, et al
  2025

- **Solvent-mediated oxide hydrogenation in layered cathodes.** *Science (New York, N.Y.)*
  Wan, G., Pollard, T. P., Ma, L., Schroeder, M. A., Chen, C. C., Zhu, Z., Zhang, Z., Sun, C. J., Cai, J., Thaman, H. L., Vailionis, A., Li, H., Kelly, et al

2024; 385 (6714): 1230-1236

- **Understanding and Harnessing Nanoscale Immiscibility in Ru-In Alloys for Selective CO2 Hydrogenation.** *Journal of the American Chemical Society*
  Zhou, C., Liccardo, G., Hoffman, A. S., Oh, J., Holmes, S. E., Vailionis, A., Bare, S. R., Cargnello, M.
  2024
- **Reciprocal space x-ray computed tomography** *APL MATERIALS*
  Vailionis, A., Wu, L., Spanier, J. E.
  2024; 12 (5)
- **Room-Temperature Ferroelectric Epitaxial Nanowire Arrays with Photoluminescence.** *Nano letters*
  Le, H. K., Zhang, Y., Behera, P., Vailionis, A., Phang, A., Brinn, R. M., Yang, P.
  2024
- **Author Correction: Ultra-thin lithium aluminate spinel ferrite films with perpendicular magnetic anisotropy and low damping.** *Nature communications*
  Zheng, X. Y., Channa, S., Riddiford, L. J., Wisser, J. J., Mahalingam, K., Bowers, C. T., McConney, M. E., N'Diaye, A. T., Vailionis, A., Cogulu, E., Ren, H., Galazka, Z., Kent, et al
  2024; 15 (1): 534
- **Revelation of Tooth Structural Integrity at the Microcrack Site Using Multi-Modal Imaging**
  Dumbryte, I., Narbutis, D., Androulidaki, M., Jasiuniene, E., Vailionis, A., Juodkazis, S., Malinauskas, M.
  edited by Popp, J., Gergely, C.
  SPIE-INT SOC OPTICAL ENGINEERING.2024
- **Teeth Microcracks Research: Towards Multi-Modal Imaging.** *Bioengineering (Basel, Switzerland)*
  Dumbryte, I., Narbutis, D., Androulidaki, M., Vailionis, A., Juodkazis, S., Malinauskas, M.
  2023; 10 (12)
- **Correlating chemistry and mass transport in sustainable iron production.** *Proceedings of the National Academy of Sciences of the United States of America*
  Zheng, X., Paul, S., Moghimi, L., Wang, Y., Vilá, R. A., Zhang, F., Gao, X., Deng, J., Jiang, Y., Xiao, X., Wu, C., Greenburg, L. C., Yang, et al
  2023; 120 (43): e2305097120
- **Aluminum substitution in low damping epitaxial lithium ferrite films** *APPLIED PHYSICS LETTERS*
  O'Mahoney, D., Channa, S., Zheng, X., Vailionis, A., Shafer, P., N'Diaye, A. T., Klewe, C., Suzuki, Y.
  2023; 123 (17)
- **Enhanced functionality of Scots pine sapwood by in situ hydrothermal synthesis of GdPO4•H2O:Eu3+Composites in woods matrix** *CERAMICS INTERNATIONAL*
  Baublyte, M., Vailionis, A., Sokol, D., Skaudzius, R.
  2023; 49 (19): 31255-31264
- **Low-temperature carbon dioxide conversion via reverse water-gas shift thermochemical looping with supported iron oxide** *CELL REPORTS PHYSICAL SCIENCE*
  Sun, E., Wan, G., Haribal, V., Gigantino, M., Marin-Quiros, S., Oh, J., Vailionis, A., Tong, A., Randall, R., Rojas, J., Gupta, R., Majumdar, A.
  2023; 4 (9)
- **Ultra-thin lithium aluminate spinel ferrite films with perpendicular magnetic anisotropy and low damping.** *Nature communications*
  Zheng, X. Y., Channa, S., Riddiford, L. J., Wisser, J. J., Mahalingam, K., Bowers, C. T., McConney, M. E., N'Diaye, A. T., Vailionis, A., Cogulu, E., Ren, H., Galazka, Z., Kent, et al
  2023; 14 (1): 4918
- **Quantification of strain and its impact on the phase stabilization of all-inorganic cesium lead iodide perovskites** *MATTER*
  Le, H. K. D., Lin, C., Jin, J., Zhang, Y., Lin, Z., Vailionis, A., Tamura, N., Yang, P.
  2023; 6 (7): 2368-2382
- **Field-free spin-orbit torque switching assisted by in-plane unconventional spin torque in ultrathin [Pt/Co]N.** *Nature communications*
  Xue, F., Lin, S. J., Song, M., Hwang, W., Klewe, C., Lee, C. M., Turgut, E., Shafer, P., Vailionis, A., Huang, Y. L., Tsai, W., Bao, X., Wang, et al
  2023; 14 (1): 3932

- **Structure and Optical Anisotropy of Spider Scales and Silk: The Use of Chromaticity and Azimuth Colors to Optically Characterize Complex Biological Structures.** *Nanomaterials (Basel, Switzerland)*
  Linklater, D., Vailionis, A., Ryu, M., Kamegaki, S., Morikawa, J., Mu, H., Smith, D., Maasoumi, P., Ford, R., Katkus, T., Blamires, S., Kondo, T., Nishijima, et al
  2023; 13 (12)
- **Observation of anti-damping spin-orbit torques generated by in-plane and out-of-plane spin polarizations in MnPd3.** *Nature materials*
  Dc, M., Shao, D. F., Hou, V. D., Vailionis, A., Quarterman, P., Habiboglu, A., Venuti, M. B., Xue, F., Huang, Y. L., Lee, C. M., Miura, M., Kirby, B., Bi, et al
  2023
- **Large Spin-Orbit-Torque Efficiency and Room-Temperature Magnetization Switching in SrIrO3/Co-Fe-B Heterostructures** *PHYSICAL REVIEW APPLIED*
  Li, P., Channa, S., Li, X., Alahmed, L., Tang, C., Yi, D., Riddiford, L., Wisser, J., Balakrishnan, P. P., Zheng, X., Lu, D., Vailionis, A., Wang, et al
  2023; 23 (2)
- **Investigation of the Antimicrobial Properties of Beetroot-Gelatin Films Containing Silver Particles Obtained via Green Synthesis** *APPLIED SCIENCES-BASEL*
  Puiso, J., Adliene, D., Paskevicius, A., Vailionis, A.
  2023; 13 (3)
- **Revelation of microcracks as tooth structural element by X-ray tomography and machine learning.** *Scientific reports*
  Dumbryte, I., Narbutis, D., Vailionis, A., Juodkazis, S., Malinauskas, M.
  2022; 12 (1): 22489
- **Strain engineering during epitaxial growth of oxides** *Epitaxial Growth of Complex Metal Oxides*
  Vailionis, A.
  Woodhead Publishing.2022; 2nd: 159
- **Three-dimensional non-destructive visualization of teeth enamel microcracks using X-ray micro-computed tomography.** *Scientific reports*
  Dumbryte, I., Vailionis, A., Skliutas, E., Juodkazis, S., Malinauskas, M.
  2021; 11 (1): 14810
- **Charge-spin interconversion in epitaxial Pt probed by spin-orbit torques in a magnetic insulator** *PHYSICAL REVIEW MATERIALS*
  Li, P., Riddiford, L. J., Bi, C., Wisser, J. J., Sun, X., Vailionis, A., Veit, M. J., Altman, A., Li, X., Mahendra, D. C., Wang, S. X., Suzuki, Y., Emori, et al
  2021; 5 (6)
- **Emergent long-range magnetic order in ultrathin (111)-oriented LaNiO3 films** *NPJ QUANTUM MATERIALS*
  Kane, M. M., Vailionis, A., Riddiford, L. J., Mehta, A., N'Diaye, A. T., Klewe, C., Shafer, P., Arenholz, E., Suzuki, Y.
  2021; 6 (1)
- **Three-Dimensional Analysis of Particle Distribution on Filter Layers inside N95 Respirators by Deep Learning.** *Nano letters*
  Lee, H. R., Liao, L., Xiao, W., Vailionis, A., Ricco, A. J., White, R., Nishi, Y., Chiu, W., Chu, S., Cui, Y.
  2020
- **Two-dimensional electron systems in perovskite oxide heterostructures: Role of the polarity-induced substitutional defects** *PHYSICAL REVIEW MATERIALS*
  Lin, S., Kuo, C., Shao, Y., Chuang, Y., Geessinck, J., Huijben, M., Rueff, J., Graff, I. L., Conti, G., Peng, Y., Bostwick, A., Gullikson, E., Gullikson, et al
  2020; 4 (11)
- **Extreme tensile strain states in La0.7Ca0.3MnO3 membranes.** *Science (New York, N.Y.)*
  Hong, S. S., Gu, M. n., Verma, M. n., Harbola, V. n., Wang, B. Y., Lu, D. n., Vailionis, A. n., Hikita, Y. n., Pentcheva, R. n., Rondinelli, J. M., Hwang, H. Y.
  2020; 368 (6486): 71–76
- **Modification of spin-ice physics in Ho2Ti2O7 thin films** *PHYSICAL REVIEW MATERIALS*
  Barry, K., Zhang, B., Anand, N., Xing, Y., Vailionis, A., Neu, J., Heikes, C., Cochran, C., Zhou, H., Qiu, Y., Ratcliff, W., Siegrist, T., Beekman, et al
  2019; 3 (8)
- **Nanoscale optical and structural characterisation of silk.** *Beilstein journal of nanotechnology*

Ryu, M., Honda, R., Cernescu, A., Vailionis, A., Balčytis, A., Vongsvivut, J., Li, J. L., Linklater, D. P., Ivanova, E. P., Mizeikis, V., Tobin, M. J., Morikawa, J., Juodkazis, et al
2019; 10: 922-929

- **Nanoscale optical and structural characterisation of silk** *BEILSTEIN JOURNAL OF NANOTECHNOLOGY*
  Ryu, M., Handa, R., Cernescu, A., Vailionis, A., Balcytis, A., Vongsvivut, J., Li, J., Linklater, D. P., Ivanova, E. P., Mizeikis, V., Tobin, M. J., Morikawa, J., Juodkazis, et al
  2019; 10: 922–29
- **Modification of spin-ice physics in Ho2Ti2O7 thin films.** *Physical review materials*
  Barry, K., Zhang, B., Anand, N., Xin, Y., Vailionis, A., Neu, J., Heikes, C., Cochran, C., Zhou, H., Qiu, Y., Ratcliff, W., Siegrist, T., Beekman, et al
  2019; 3
- **Depth-resolved resonant inelastic x-ray scattering at a superconductor/half-metallic-ferromagnet interface through standing wave excitation** *PHYSICAL REVIEW B*
  Kuo, C., Lin, S., Ghiringhelli, G., Peng, Y., De Luca, G., Di Castro, D., Betto, D., Gehlmann, M., Wijnands, T., Huijben, M., Meyer-Ilse, J., Gullikson, E., Kortright, et al
  2018; 98 (23)
- **Strain Tuning in Complex Oxide Epitaxial Films Using an Ultrathin Strontium Aluminate Buffer Layer** *PHYSICA STATUS SOLIDI-RAPID RESEARCH LETTERS*
  Lu, D., Hikita, Y., Baek, D. J., Merz, T. A., Sato, H., Kim, B., Yajima, T., Bell, C., Vailionis, A., Kourkoutis, L. F., Hwang, H. Y.
  2018; 12 (3)
- **Robust Pinhole-free Li3N Solid Electrolyte Grown from Molten Lithium.** *ACS central science*
  Li, Y., Sun, Y., Pei, A., Chen, K., Vailionis, A., Li, Y., Zheng, G., Sun, J., Cui, Y.
  2018; 4 (1): 97–104
- **Strong texturing of lithium metal in batteries** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Shi, F., Pei, A., Vailionis, A., Xie, J., Liu, B., Zhao, J., Gong, Y., Cui, Y.
  2017; 114 (46): 12138–43
- **Tuning Perpendicular Magnetic Anisotropy by Oxygen Octahedral Rotations in (La_{1-x}Sr_{x}MnO_{3})/(SrIrO_{3}) Superlattices.** *Physical review letters*
  Yi, D., Flint, C. L., Balakrishnan, P. P., Mahalingam, K., Urwin, B., Vailionis, A., N'Diaye, A. T., Shafer, P., Arenholz, E., Choi, Y., Stone, K. H., Chu, J. H., Howe, et al
  2017; 119 (7): 077201
- **: Controlling selectivity toward oxygenates and hydrocarbons.** *Proceedings of the National Academy of Sciences of the United States of America*
  Hahn, C., Hatsukade, T., Kim, Y., Vailionis, A., Baricuatro, J. H., Higgins, D. C., Nitopi, S. A., Soriaga, M. P., Jaramillo, T. F.
  2017; 114 (23): 5918-5923
- **Hybrid metal-organic chalcogenide nanowires with electrically conductive inorganic core through diamondoid-directed assembly.** *Nature materials*
  Yan, H., Hohman, J. N., Li, F. H., Jia, C., Solis-Ibarra, D., Wu, B., Dahl, J. E., Carlson, R. M., Tkachenko, B. A., Fokin, A. A., Schreiner, P. R., Vailionis, A., Kim, et al
  2017; 16 (3): 349-355
- **Variation in superconducting transition temperature due to tetragonal domains in two-dimensionally doped SrTiO3** *PHYSICAL REVIEW B*
  Noad, H., Spanton, E. M., Nowack, K. C., Inoue, H., Kim, M., Merz, T. A., Bell, C., Hikita, Y., Xu, R., Liu, W., Vailionis, A., Hwang, H. Y., Moler, et al
  2016; 94 (17)
- **Ultrafast terahertz-field-driven ionic response in ferroelectric BaTiO3** *PHYSICAL REVIEW B*
  Chen, F., Zhu, Y., Liu, S., Qi, Y., Hwang, H. Y., Brandt, N. C., Lu, J., QUIRIN, F., Enquist, H., Zalden, P., Hu, T., Goodfellow, J., Sher, et al
  2016; 94 (18)
- **Interfacial Symmetry Control of Emergent Ferromagnetism at the Nanoscale.** *Nano letters*
  Grutter, A. J., Vailionis, A., Borchers, J. A., Kirby, B. J., Flint, C. L., He, C., Arenholz, E., Suzuki, Y.
  2016; 16 (9): 5647-5651

- **Depth resolved domain mapping in tetragonal SrTiO3 by micro-Laue diffraction** *APPLIED PHYSICS LETTERS*
  Merz, T. A., Noad, H., Xu, R., Inoue, H., Liu, W., Hikita, Y., Vailionis, A., Moler, K. A., Hwang, H. Y.
  2016; 108 (18)

- **Massive Dirac Fermion Observed in Lanthanide-Doped Topological Insulator Thin Films** *SCIENTIFIC REPORTS*
  Harrison, S. E., Collins-McIntyre, L. J., Schoenherr, P., Vailionis, A., Srot, V., van Aken, P. A., Kellock, A. J., Pushp, A., Parkin, S. S., Harris, J. S., Zhou, B., Chen, Y. L., Hesjedal, et al
  2015; 5

- **Imaging and control of ferromagnetism in LaMnO3/SrTiO3 heterostructures** *SCIENCE*
  Wang, X. R., Li, C. J., Lu, W. M., Paudel, T. R., Leusink, D. P., Hoek, M., Poccia, N., Vailionis, A., Venkatesan, T., Coey, J. M., Tsymbal, E. Y., Ariando, Hilgenkamp, H.
  2015; 349 (6249): 716-719

- **Research Update: Stoichiometry controlled oxide thin film growth by pulsed laser deposition** *APL MATERIALS*
  Groenen, R., Smit, J., Orsel, K., Vailionis, A., Bastiaens, B., Huijben, M., Boller, K., Rijnders, G., Koster, G.
  2015; 3 (7)

- **The effects of strain on crystal structure and properties during epitaxial growth of oxides** *Epitaxial Growth of Complex Metal Oxides*
  Huijben, M., Rijnders, G.
  edited by Koster, G.
  Woodhead Publishing.2015

- **The application of floating dies for high speed growth of CsI single crystals by edge-defined film-fed growth (EFG)** *JOURNAL OF CRYSTAL GROWTH*
  Guguschev, C., Calvert, G., Podowitz, S., Vailionis, A., Yeckel, A., Feigelson, R. S.
  2014; 404: 231-240

- **Symmetry and lattice mismatch induced strain accommodation near and away from correlated perovskite interfaces** *APPLIED PHYSICS LETTERS*
  Vailionis, A., Boschker, H., Liao, Z., Smit, J. R., Rijnders, G., Huijben, M., Koster, G.
  2014; 105 (13)

- **Phase Transformation in Laser-Induced Micro-Explosion in Olivine (Fe,Mg)(2)SiO4** *ADVANCED ENGINEERING MATERIALS*
  Buividas, R., Gervinskas, G., Tadich, A., Cowie, B. C., Mizeikis, V., Vailionis, A., de Ligny, D., Gamaly, E. G., Rode, A. V., Juodkazis, S.
  2014; 16 (6): 767-773

- **Controlling the Structural and Optical Properties of Ta3N5 Films through Nitridation Temperature and the Nature of the Ta Metal** *CHEMISTRY OF MATERIALS*
  Pinaud, B. A., Vailionis, A., Jaramillo, T. F.
  2014; 26 (4): 1576-1582

- **Stabilization of spin-zero Ru4+ through epitaxial strain in SrRuO3 thin films** *PHYSICAL REVIEW B*
  Grutter, A. J., Wong, F. J., Jenkins, C. A., Arenholz, E., Vailionis, A., Suzuki, Y.
  2013; 88 (21)

- **Thermopower in quantum confined La-doped SrTiO3 epitaxial heterostructures** *APPLIED PHYSICS LETTERS*
  Kerman, K., Ramanathan, S., Baniecki, J. D., Ishii, M., Kotaka, Y., Aso, H., Kurihara, K., Schafranek, R., Vailionis, A.
  2013; 103 (17)

- **High-Temperature Magnetic Insulating Phase in Ultrathin La0.67Sr0.33MnO3 Films** *PHYSICAL REVIEW LETTERS*
  Boschker, H., Kautz, J., Houwman, E. P., Siemons, W., Blank, D. H., Huijben, M., Koster, G., Vailionis, A., Rijnders, G.
  2012; 109 (15)

- **Scalable Fabrication of Strongly Textured Organic Semiconductor Micropatterns by Capillary Force Lithography** *ADVANCED MATERIALS*
  Jo, P. S., Vailionis, A., Park, Y. M., Salleo, A.
  2012; 24 (24): 3269-3274

- **Evidence of high-spin Ru and universal magnetic anisotropy in SrRuO3 thin films** *PHYSICAL REVIEW B*
  Grutter, A. J., Wong, F. J., Arenholz, E., Vailionis, A., Suzuki, Y.

2012; 85 (13)

- **Warm dense matter at the bench-top: Fs-laser-induced confined micro-explosion** *HIGH ENERGY DENSITY PHYSICS*
  Gamaly, E. G., Vailionis, A., Mizeikis, V., Yang, W., Rode, A. V., Juodkazis, S.
  2012; 8 (1): 13-17
- **Size effects on thermoelectricity in a strongly correlated oxide** *PHYSICAL REVIEW B*
  Ravichandran, J., Yadav, A. K., Siemons, W., McGuire, M. A., Wu, V., Vailionis, A., Majumdar, A., Ramesh, R.
  2012; 85 (8)
- **Synthesis of super-dense phase of aluminum under extreme pressure and temperature conditions created by femtosecond laser pulses in sapphire** *ADVANCED FABRICATION TECHNOLOGIES FOR MICRO/NANO OPTICS AND PHOTONICS V*
  Mizeikis, V., Vailionis, A., Gamaly, E. G., Yang, W., Rode, A., Juodkazis, S.
  2012; 8249
- **Electronic transport behavior of off-stoichiometric La and Nb doped SrxTiyO3-delta epitaxial thin films and donor doped single-crystalline SrTiO3** *APPLIED PHYSICS LETTERS*
  Baniecki, J. D., Ishii, M., Aso, H., Kobayashi, K., Kurihara, K., Yamanaka, K., Vailionis, A., Schafranek, R.
  2011; 99 (23)
- **Uniaxial contribution to the magnetic anisotropy of La0.67Sr0.33MnO3 thin films induced by orthorhombic crystal structure** *JOURNAL OF MAGNETISM AND MAGNETIC MATERIALS*
  Boschker, H., Mathews, M., Brinks, P., Houwman, E., Vailionis, A., Koster, G., Blank, D. H., Rijnders, G.
  2011; 323 (21): 2632-2638
- **Synthesis of high-pressure phases of silica by laser-induced optical breakdown** *APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING*
  Mizeikis, V., Kohara, S., Onishi, Y., Hirao, N., Saito, A., Vailionis, A., Juodkazis, S.
  2011; 104 (3): 903-906
- **Evidence of superdense aluminium synthesized by ultrafast microexplosion** *NATURE COMMUNICATIONS*
  Vailionis, A., Gamaly, E. G., Mizeikis, V., Yang, W., Rode, A. V., Juodkazis, S.
  2011; 2
- **Optimized fabrication of high-quality La0.67Sr0.33MnO3 thin films considering all essential characteristics** *JOURNAL OF PHYSICS D-APPLIED PHYSICS*
  Boschker, H., Huijben, M., Vailionis, A., Verbeeck, J., Van Aert, S., Luysberg, M., Bals, S., Van Tendeloo, G., Houwman, E. P., Koster, G., Blank, D. H., Rijnders, G.
  2011; 44 (20)
- **Structural Characterization of Femtosecond Laser Modified Regions Inside Sapphire** *JOURNAL OF NANOSCIENCE AND NANOTECHNOLOGY*
  Juodkazis, S., Kohara, S., Ohishi, Y., Hirao, N., Vailionis, A., Mizeikis, V., Saito, A., Rode, A.
  2011; 11 (4): 2931-2936
- **Controlling Electric Dipoles in Nanodielectrics and Its Applications for Enabling Air-Stable n-Channel Organic Transistors** *NANO LETTERS*
  Chung, Y., Verploegen, E., Vailionis, A., Sun, Y., Nishi, Y., Murmann, B., Bao, Z.
  2011; 11 (3): 1161-1165
- **Misfit strain accommodation in epitaxial ABO(3) perovskites: Lattice rotations and lattice modulations** *PHYSICAL REVIEW B*
  Vailionis, A., Boschker, H., Siemons, W., Houwman, E. P., Blank, D. H., Rijnders, G., Koster, G.
  2011; 83 (6)
- **Synthesis of Materials by Ultrafast Microexplosion** *Conference on Lasers and Electro-Optics (CLEO)*
  Vailionis, A., Gamaly, E. G., Mizeikis, V., Yang, W., Rode, A., Juodkazis, S.
  IEEE.2011
- **Structural changes in femtosecond laser modified regions inside fused silica** *JOURNAL OF OPTICS*
  Juodkazis, S., Kohara, S., Ohishi, Y., Hirao, N., Vailionis, A., Mizeikis, V., Saito, A., Rode, A.
  2010; 12 (12)

- **Stripes of increased diamagnetic susceptibility in underdoped superconducting Ba(Fe(1-x)Cox)(2)As-2 single crystals: Evidence for an enhanced superfluid density at twin boundaries** *PHYSICAL REVIEW B*
  Kalisky, B., Kirtley, J. R., Analytis, J. G., Chu, J., Vailionis, A., Fisher, I. R., Moler, K. A.
  2010; 81 (18)
- **Enhanced magnetism in epitaxial SrRuO3 thin films** *APPLIED PHYSICS LETTERS*
  Grutter, A., Wong, F., Arenholz, E., Liberati, M., Vailionis, A., Suzuki, Y.
  2010; 96 (8)
- **Anisotropic stress relief mechanism in epitaxial La0.67Sr0.33MnO3 films** *APPLIED PHYSICS LETTERS*
  Vailionis, A., Boschker, H., Houwman, E., Koster, G., Rijnders, G., Blank, D. H.
  2009; 95 (15)
- **Strong uniaxial in-plane magnetic anisotropy of (001)- and (011)-oriented La0.67Sr0.33MnO3 thin films on NdGaO3 substrates** *PHYSICAL REVIEW B*
  Boschker, H., Mathews, M., Houwman, E. P., Nishikawa, H., Vailionis, A., Koster, G., Rijnders, G., Blank, D. H.
  2009; 79 (21)
- **Room temperature epitaxial stabilization of a tetragonal phase in ARuO(3) (A=Ca and Sr) thin films** *APPLIED PHYSICS LETTERS*
  Vailionis, A., Siemons, W., Koster, G.
  2008; 93 (5)
- **Strain-induced single-domain growth of epitaxial SrRuO3 layers on SrTiO3: A high-temperature x-ray diffraction study** *APPLIED PHYSICS LETTERS*
  Vailionis, A., Siemons, W., Koster, G.
  2007; 91 (7)
- **Dependence of the electronic structure of SrRuO3 and its degree of correlation on cation off-stoichiometry** *PHYSICAL REVIEW B*
  Siemons, W., Koster, G., Vailionis, A., Yamamoto, H., Blank, D. H., Beasley, M. R.
  2007; 76 (7)
- **AFM and complementary XRD measurements of in situ grown YBCO films obtained by pulsed laser deposition** *Symposium on Photon-Assisted Synthesis and Processing of Functional Materials held at the 2006 EMRS Spring Meeting*
  Branescu, M., Vailionis, A., Huh, J., Moldovan, A., Socol, G.
  ELSEVIER SCIENCE BV.2007: 8179–83
- **Spectroscopic and X-ray diffraction study of high T-c epitaxial YBCO thin films obtained by pulsed laser deposition** *Symposium on Current Trends in Optical and X-Ray Meterology of Advanced Materials for Nanoscale Devices held at the 2005 MRS Spring Meeting*
  Branescu, M., Vailionis, A., Gartner, M., Anastasescu, M.
  ELSEVIER SCIENCE BV.2006: 400–404
- **Ion beam and complementary SEM and XRD characterization of YBa2Cu3O7-x films obtained by pulsed laser deposition** *17th International Conference on Ion Beam Analysis*
  Branescu, M., Thome, L., Pantelica, D., Ward, I., Vailionis, A., Ionescu, P.
  ELSEVIER SCIENCE BV.2006: 911–914
- **In situ grown epitaxial YBa2Cu3O7-x thin films by pulsed laser deposition under reduced oxygen pressure during cool-down time** *Symposium on Advances in Laser and Lamp Processing of Functional Materials*
  Branescu, M., Vailionis, A., Ward, I., Huh, J., Socol, G.
  ELSEVIER SCIENCE BV.2006: 4573–77
- **Thickness-dependent properties of (110)-oriented La1.2Sr1.8Mn2O7 thin films** *JOURNAL OF APPLIED PHYSICS*
  Takamura, Y., Chopdekar, R. V., Grepstad, J. K., Suzuki, Y., Marshall, A. F., Vailionis, A., Zheng, H., Mitchell, J. F.
  2006; 99 (8)
- **Polarized XANES and EXAFS spectroscopic investigation into copper(II) complexes on vermiculite** *GEOCHIMICA ET COSMOCHIMICA ACTA*
  Furnare, L. J., Vailionis, A., Strawn, D. G.
  2005; 69 (22): 5219-5231

- **Molecular-level investigation into copper complexes on vermiculite: Effect of reduction of structural iron on copper complexation** *JOURNAL OF COLLOID AND INTERFACE SCIENCE*
  Furnare, L. J., Vailionis, A., Strawn, D. G.
  2005; 289 (1): 1-13

- **Determination of absolute orientation-dependent TiN(001) and TiN(111) step energies** *VACUUM*
  Kodambaka, S., Khare, S. V., Petrova, V., Vailionis, A., Petrov, I., Greene, J. E.
  2004; 74 (3-4): 345-351

- **A multichannel superconducting tunnel junction detector for high-resolution X-ray spectroscopy of magnesium diboride films** *Applied Superconductivity Conference*
  Friedrich, S., Vailionis, A., Drury, O., Niedermayr, T., Funk, T., Kang, W. N., Choi, E. M., Kim, H. J., Lee, S. I., Cramer, S. P., Kim, C., Labov, S. E.
  IEEE-INST ELECTRICAL ELECTRONICS ENGINEERS INC.2003: 1114–19

- **In situ high-temperature scanning tunneling microscopy studies of two-dimensional TiN island coarsening kinetics on TiN(001)** *SURFACE SCIENCE*
  Kodambaka, S., Petrova, V., Vailionis, A., Petrov, I., Greene, J. E.
  2003; 526 (1-2): 85-96

- **Absolute orientation-dependent TiN(001) step energies from two-dimensional equilibrium island shape and coarsening measurements on epitaxial TiN(001) layers (vol 513, pg 468, 2002)** *SURFACE SCIENCE*
  Kodambaka, S., Khare, S. V., Petrova, V., Vailionis, A., Petrov, I., Greene, J. E.
  2003; 523 (3): 316-316

- **Dopant deactivation in heavily Sb doped Si (001): A high-resolution x-ray diffraction and transmission electron microscopy study** *JOURNAL OF APPLIED PHYSICS*
  Takamura, Y., Vailionis, A., Marshall, A. F., Griffin, P. B., Plummer, J. D.
  2002; 92 (9): 5503-5507

- **Absolute orientation-dependent TiN(001) step energies from two-dimensional equilibrium island shape and coarsening measurements on epitaxial TiN(001) layers** *SURFACE SCIENCE*
  Kodambaka, S., Khare, S. V., Petrova, V., Vailionis, A., Petrov, I., Greene, J. E.
  2002; 513 (3): 468-474

- **Hydrogen-mediated quenching of strain-induced surface roughening during gas-source molecular beam epitaxy of fully-coherent Si0.7Ge0.3 layers on Si(001)** *JOURNAL OF APPLIED PHYSICS*
  Spila, T., Desjardins, P., Vailionis, A., Kim, H., Taylor, N., Cahill, D. G., Greene, J. E., Guillon, S., Masut, R. A.
  2002; 91 (6): 3579-3588

- **TiN(001) and TiN(111) island coarsening kinetics: in-situ scanning tunneling microscopy studies** *THIN SOLID FILMS*
  Kodambaka, S., Petrova, V., Vailionis, A., Desjardins, P., Cahill, D. G., Petrov, I., Greene, J. E.
  2001; 392 (2): 164-168

- **Misfit strain induced lattice distortions in heteroepitaxially grown LaxCa1-xMnO3 thin films studied by extended x-ray absorption fine structure and high-resolution x-ray diffraction** *JOURNAL OF APPLIED PHYSICS*
  Miniotas, A., Vailionis, A., Svedberg, E. B., Karlsson, U. O.
  2001; 89 (4): 2134-2137

- **Pathway for the strain-driven two-dimensional to three-dimensional transition during growth of Ge on Si(001)** *PHYSICAL REVIEW LETTERS*
  Vailionis, A., Cho, B., Glass, G., Desjardins, P., Cahill, D. G., Greene, J. E.
  2000; 85 (17): 3672-3675

- **In-situ high-temperature scanning-tunnelling-microscopy studies of two-dimensional island-decay kinetics on atomically smooth TiN(001)** *SURFACE REVIEW AND LETTERS*
  Kodambaka, S., Petrova, V., Vailionis, A., Desjardins, P., Cahill, D. G., Petrov, I., Greene, J. E.
  2000; 7 (5-6): 589-593

- **Ge(011)-c(8x10) surface structure and hydrogen desorption pathways: a temperature-programmed desorption and scanning tunneling microscopy study** *SURFACE SCIENCE*
  Kim, H., Vailionis, A., Cahill, D. G., Greene, J. E.

2000; 457 (3): 337-344

- **Growth and physical properties of epitaxial metastable cubic TaN(001)** *APPLIED PHYSICS LETTERS*
  Shin, C. S., Gall, D., Desjardins, P., Vailionis, A., Kim, H., Petrov, I., Greene, J. E., Oden, M.
  1999; 75 (24): 3808-3810
- **Cation disorder in superconducting HgBa2CaCu2O6+delta films prepared on SrTiO3 substrates** *PHYSICA C-SUPERCONDUCTIVITY AND ITS APPLICATIONS*
  Vailionis, A., Brazdeikis, A., Bryntse, I., Flodstrom, A. S.
  1999; 328 (1-2): 67-70
- **Electrically active and inactive B lattice sites in ultrahighly B doped Si(001): An x-ray near-edge absorption fine-structure and high-resolution diffraction study** *PHYSICAL REVIEW LETTERS*
  Vailionis, A., Glass, G., Desjardins, P., Cahill, D. G., Greene, J. E.
  1999; 82 (22): 4464-4467
- **Observation of local oxygen displacements in CuO2 planes induced by a misfit strain in heteroepitaxially grown infinite-layer-structure Ca1-xSrxCuO2 films** *PHYSICAL REVIEW B*
  Vailionis, A., Brazdeikis, A., Flodstrom, A. S.
  1997; 55 (10): R6152-R6155
- **Microstructural properties of Bi2Sr2Can-1CunOy multilayers grown by molecular beam epitaxy** *PHYSICAL REVIEW B*
  Vailionis, A., Brazdeikis, A., Flodstrom, A. S.
  1996; 54 (21): 15457-15462
- **MOLECULAR-BEAM EPITAXY GROWTH AND MICROSTRUCTURE OF THIN SUPERCONDUCTING BI2SR2CACU2OX FILMS** *PHYSICA C-SUPERCONDUCTIVITY AND ITS APPLICATIONS*
  Brazdeikis, A., Vailionis, A., Flodstrom, A. S., Traeholt, C.
  1995; 253 (3-4): 383-390
- **GROWTH-KINETICS-INDUCED STRUCTURAL DISORDER IN BI-2(SR1-XCAX)(3)CU2OY THIN-FILMS STUDIED BY X-RAY-DIFFRACTION** *PHYSICAL REVIEW B*
  Vailionis, A., Brazdeikis, A., Flodstrom, A. S.
  1995; 51 (5): 3097-3103
- **Superconducting multilayers: Microstructural properties studied by x-ray diffraction** *Symposium on Structure and Properties of Multilayered Thin Films, at the 1995 MRS Spring Meeting*
  Vailionis, A., Brazdeikis, A., Flodstrom, A. S.
  MATERIALS RESEARCH SOC.1995: 217–222
- **LAYER-BY-LAYER GROWTH OF BI2SR2CAN-1CUNOX FILMS WITH N-GREATER-THAN-OR-EQUAL-TO-3 BY MOLECULAR-BEAM EPITAXY** *PHYSICA C-SUPERCONDUCTIVITY AND ITS APPLICATIONS*
  Brazdeikis, A., Vailionis, A., Flodstrom, A. S.
  1994; 235: 711-712
- **HYDROGEN-INDUCED OXYGEN NONSTOICHIOMETRY OF Y2BACUO5** *FIZIKA TVERDOGO TELA*
  Jukna, A., Vengalis, B., SHIKTOROVAS, N., Lisauskas, V., Vailionis, A., Jasutis, V.
  1993; 35 (5): 1160-1166
- **ULTRAFAST ELECTRICAL SUPERCONDUCTING TO NORMAL STATES SWITCHING IN Y-BA-CU-O AND BI-SR-CA-CU-O MICROSTRIPS** *SYMP ON LAYERED SUPERCONDUCTORS : FABRICATION, PROPERTIES, AND APPLICATIONS*
  Balevicius, S., BICIUNAS, A., Butkute, R., Jasutis, V., Lisauskas, V., Vailionis, A., Flodstrom, A., Vengalis, B.
  MATERIALS RESEARCH SOC.1992: 589–593