

2000

- C. Heremans and H.L. Tuller, Field-induced Antiferroelectric-Ferroelectric Phase Transitions in the $\text{Pb}_{0.98}\text{La}_{0.02}(\text{Zr}_{0.70}\text{Hf}_{0.30})_{1-x}\text{Ti}_x\text{O}_3$ System, *J. Appl. Phys.*, 87:3, 1458-1486 (2000).
- H.L. Tuller and R. Mlcak, Advanced Sensor Technology Based on Oxide Thin Films – MEMS Integration, *J. Electroceramics*, 4, 415-425 (2000). Invited.
- H. Fritze, H.L. Tuller, G. Borchardt and T. Fukuda, “High Temperature Properties of Langasite” Symposium on Smart Materials, R. Gotthardt, K. Uchino, Y. Ito, and M. Wun-Fogle, Eds., *MRS Symposium Proceedings*, Vol. 604, Materials Research Society, Warrendale, PA, 2000, pp. 65-70.
- H. Takamura and H.L. Tuller, Ionic Conductivity of $\text{Gd}_2\text{GaSbO}_7$ – $\text{Gd}_2\text{Zr}_2\text{O}_7$ Solid Solutions with Structural Disorder, *Solid State Ionics*, 134, 67-73 (2000).
- H.L. Tuller, Ionic Conduction in Nanocrystalline Materials, *Solid State Ionics*, 131, 143-157 (2000). Invited.
- H.L. Tuller, Materials Design and Optimization, Oxygen Ion and Mixed Conductors and their Technological Applications, eds. H.L. Tuller, J. Schoonman, and I. Riess, Kluwer Academic Publishers, The Netherlands, 2000, pp. 245-270. (Invited)
- H.L. Tuller, Defects and Transport: Implications for Solid Oxide Electrolytes and Mixed Conductors, Oxygen Ion and Mixed Conductors and their Technological Applications, eds. H.L. Tuller, J. Schoonman, and I. Riess, Kluwer Academic Publishers, The Netherlands, 2000, pp. 57-74. (Invited).
- F. Lecarpentier, H.L. Tuller and N. Long, Performance of $\text{La}_{0.9}\text{Sr}_{0.1}\text{Ga}_{0.5}\text{Ni}_{0.5}\text{O}_3$ as a Cathode for a Lanthanum Gallate Fuel Cell, *J. Electroceramics*, 5, 225-230 (2000).
- H. Fritze and H.L. Tuller, Langasite for High-Temperature Bulk Acoustic Wave Applications, *Appl. Phys. Lett.*, 78, 976-977 (2001).

2001

- H. Fritze, H. Seh, H. L. Tuller, G. Borchardt, Operation Limits of Langasite High Temperature Nanobalances, *J. Euro. Ceram. Soc.*, 21, 1473-1477 (2001).
- T. Stefanik and H.L. Tuller, Ceria-Based Gaseous Sensors, *J. Euro. Ceram. Soc.*, 21, 1967-1970 (2001).
- P. Knauth and H.L. Tuller, Solute Segregation, Electrical Properties and Defect Thermodynamics of TiO_2 and CeO_2 , *Solid State Ionics*, 135, 1215-1224 (2000).
- H.L. Tuller and Y. Avrahami, *Electroceramics - Smart Materials and Applications in The Encyclopedia of Smart Materials*, vol. 1, J.A. Harvey, Editor, John Wiley & Sons, New York, 2002, pp 337-356.
- H. Fritze, G. Borchardt, H. Seh, H. L. Tuller, Sensor Concept based on High Temperature Piezoelectric Materials, *proc. Sensor 2001 Proceedings*, Nürnberg, Germany, May 8-10, 2001, pp. 177-82 (Publisher: AMA Service GmbH, P.O. Box 2352, 31506 Wunstorf, Germany).
- H. Fritze, H. L. Tuller, H. Seh, G. Borchardt, High Temperature Nanobalance Sensor Based on Langasite, *Sensors & Actuators B*, 76 (2001) 103-107.
- R. Mlcak, D. Doppalapudi, J. Chan, A. Sampath, T.D. Moustakas, H.L. Tuller, Micromachined SiC - AlN Bulk Resonator Array Sensor Platform for Ultra Sensitive Explosives Detection, *proc. 3rd Intl' Aviation Security Technology Symposium*, Nov. 27-30 (2001).

- D. Kek, J. Lappalainen, and H. L. Tuller, Investigation of Pt/Si/CeO₂/Pt Thin-film System by Impedance Spectroscopy, Proc. 37th International Conference on Microelectronics, Devices and Materials & Workshop on Optoelectronics Devices and Applications, eds., F. Smole, M. Topic and I. Sorli, MIDEM, Ljubljana, Slovenia, 2001, pp.291-296.
- J. Clayton, H. Takamura, R. Metz, H. L. Tuller, B.J. Wuensch, The Electrical and Defect Properties of Bi₃Zn₂Sb₃O₁₄ Pyrochlore, J. Electroceram., 7, 113-120 (2001).

2002

- P. Knauth and H.L. Tuller, Solid State Ionics: Roots, Status and Future Prospects, J. Am. Ceram. Soc., 85, 1654–80 (2002). Invited
- J. Lappalainen, D. Kek, and H. L. Tuller, Investigation of Pt/Si/CeO₂/Pt MOS Device Structure by Impedance Spectroscopy, Proc. of Symposium on Electrically Based Microstructural Characterization III (MRS volume 699), Eds. R. A. Gerhardt, A. Washabaugh, and M.A. Alim, Materials Research Society, Warrendale, PA, 2002, pp R5.1.1-R5.1.11. Invited.
- R. van de Krol and H.L. Tuller, Electroceramics - The Role of Interfaces, Solid State Ionics 150, 167– 179 (2002).
- L. Tortet, P. Knauth, H. L. Tuller, Electrical Conductivity of Polycrystalline Copper(I) Bromide at Low temperature (160-300 K), Solid State Ionics, 146, 423-427 (2002).
- Joshua L. Hertz, Jyrki Lappalainen, Darja Kek, Todd Stefanik and Harry L. Tuller, Progress Towards an all Thin Film Fuel Cell for Portable Power Generation, in Micropower and Microdevices (Proc.Vol.-25-2002), eds., E. J. Brandon, A. Ryan, J. Harb, and R. Ulrich, The Electrochemical Society, Pennington, NJ, 2002, pp. 137-145.

2003

- Todd S. Stefanik and Harry L. Tuller, Electrical Conductivity in Praseodymium-Cerium Oxide, Solid State Ionics-2002, MRS Symposium Proceedings, Vol. 756, eds, P. Knauth, J.-M. Tarascon, E. Traversa and H.L. Tuller, Warrendale, PA, 2003, p163-168.
- R. Bouchet, P. Knauth, T. Stefanik, H. L. Tuller, Impedance and Mott-Schottky Analysis of a Pr_{0.15}Ce_{0.85}O_{2-x} Solid Solution, Solid State Ionics-2002, MRS Symposium Proceedings, Vol. 756, eds, P. Knauth, J.-M. Tarascon, E. Traversa and H.L. Tuller, Warrendale, PA, 2003, p169-174.
- H. Seh, H. Tuller, H. Fritze, Electrical Conductivity Prediction in Languasite for Optimized Microbalance Performance at Elevated Temperatures, Solid State Ionics-2002, MRS Symposium Proceedings, Vol. 756, eds, P. Knauth, J.-M. Tarascon, E. Traversa and H.L. Tuller, Warrendale, PA, 2003, p175-180.
- H. Fritze, H. Seh, O. Schneider, H. L. Tuller, G. Borchardt, Thin Film Stoichiometry Determination by High Temperature Microbalance Technique, Solid State Ionics-2002, MRS Symposium Proceedings, Vol. 756, eds, P. Knauth, J.-M. Tarascon, E. Traversa and H.L. Tuller, Warrendale, PA, 2003, p181-186.
- Y.K. Min, H.L. Tuller, S. Palzer, J. Wöllenstein and H. Böttner, Gas Response of Reactively Sputtered ZnO Films on Si-based Micro-array, Sensors and Actuators B93, 435–441 (2003)
- J. Wöllenstein, J.A. Plaza, C. Cane´, Y. Min, H. Böttner, H.L. Tuller, A Novel Single Chip

Thin Film Metal Oxide Array, Sensors and Actuators B93, 350–355 (2003).

- Huankiat Seh , Harry L. Tuller, Holger Fritze , Langasite for High Temperature Acoustic Wave Gas Sensors, Sensors and Actuators B93 169-174 (2003).
- Harry L. Tuller, Yongki Min and Huankiat Seh. Thin Film and Resonant Sensors, proc. 1st AIST International Workshop on Chemical Sensors, Synergy Materials Research Center, Nat. Inst. of Adv. Ind. Sc. and Tech., Nagoya, Japan, March 13, 2003, pp. 45-56
- H.L. Tuller, Defect Engineering: Design Tools for Solid State Electrochemical Devices, *Electrochimica Acta*, 48, 2879-2887 (2003) Special issue on Electrochemistry in Molecular and Microscopic Dimensions, J.W. Schultze, G. Staikov (Eds.), Invited.
- H. Fritze, O. Schneider, H. Seh, H. L. Tuller and G. Borchardt, High Temperature Bulk Acoustic Wave Properties of Langasite, *Phys. Chem. Chem. Phys.*, 5, 5207–5214 (2003)

2004

- Huankiat Seh , Harry L. Tuller, Holger Fritze, Defect Properties of Langasite and Effects on BAW Gas Sensor Performance at High Temperatures, *J. Euro. Ceram. Soc.* 24, 1425-1429 (2004).
- Jyrki Lappalainen, Darja Kek and Harry L. Tuller, High Carrier Density CeO₂ Dielectrics-Implications for MOS Devices, *J. Euro. Ceram. Soc.*, 24, 1459-1462 (2004).
- H. L. Tuller, Integration of Solid State Ionics and Electronics: Sensors and Power Sources, *J. Ceramic Society Japan, Suppl.* 112-1, 112, S1093-S1098 (2004). Invited review.
- J. Lappalainen, H. L. Tuller and V. Lantto, Electronic Conductivity and Dielectric Properties of Nanocrystalline CeO₂ Films, *J. Electroceramics*, 13, 129-133 (2004)
- Y. Avrahami and H. L. Tuller, Improved Electromechanical Response in Rhombohedral BaTiO₃, *J. Electroceramics*, 13, 463-469 (2004).
- J.L. Hertz and H.L. Tuller, Electrochemical Characterization of Thin Films for a Micro-Solid Oxide Fuel Cell, *J. Electroceramics*, 13, 663-668 (2004).
- G. J. La O, J. Hertz, H. Tuller, Y. Shao-Horn, Microstructural Features of RF-sputtered SOFC Anode and Electrolyte Materials, *J. Electroceramics*, 13, 691-695 (2004).
- T. S Stefanik and H. L Tuller, Praseodymium-Cerium Oxide as a Surface-Effect Gas Sensor, *J. Electroceramics*, 13, 771-774 (2004).
- S. Kim, G. Barbastathis and H.L. Tuller, MEMS for Optical Functionality, *J. Electroceramics*, 12, 133-144 (2004). Invited.
- C.D. Baertsch, K.F. Jensen, J.L. Hertz, H.L. Tuller, S.T. Vengallatore, S. M. Spearing, and M. A. Schmidt, Fabrication and Structural Characterization of Self-Supporting Electrolyte Membranes for a Micro Solid-Oxide Fuel Cell, *J. Mat. Res.* 19, 2604-2615 (2004)
- M.Schulz, H.Fritze, H. L. Tuller, H. Seh, Diffusion Related Implications for Langasite Resonator Operation, *IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control*, 51, 1381-1387 (2004).
- Anja Bieberle-Hütter, Harry L. Tuller, Ce_{0.9}Gd_{0.1}O₂ and La_{1-x}Sr_xCoO₃ Thin Films for Micro-SOFC, Proc. MIT-Tohoku “21COE” Joint Workshop on Nano Science in Energy Technology, Sept.27-28, (2004), MIT, Cambridge, MA. pp. O-12-1 to O-12-7
- Huankiat Seh, Takeo Hyodo, and Harry L. Tuller, Porous Barium Carbonate Film on Resonator for NO₂ Detection at High Temperatures, Proc. MIT-Tohoku “21COE” Joint Workshop on Nano-Science in Energy Technology, Sept.27-28, (2004), MIT, Cambridge, MA.

pp. O-07-1 to O-07-5

- Harry L. Tuller and Scott J. Litzelman, Potential Impact of Nano-materials Science on Energy-related Technologies, Proc. MIT-Tohoku "21COE" Joint Workshop on Nano-Science in Energy Technology, Sept.27-28, (2004), MIT, Cambridge, MA. pp.T-02-1 to T-02-12

- Scott J. Litzelman, Avner Rothschild, Harry L. Tuller, The Performance of Temperature Independent Oxygen Sensing Materials on the Nanometer Scale, Proc. MIT-Tohoku "21COE" Joint Workshop on Nano-Science in Energy Technology, Sept.27-28, (2004), MIT, Cambridge, MA. pp. O-10-1 to O-10-5

- Avner Rothschild, Scott J. Litzelman, and Harry L. Tuller, Temperature Independent Oxygen Sensors Based on $\text{SrTi}_{1-x}\text{Fe}_x\text{O}_{3-\delta}$ Solid Solution, Proc. MIT-Tohoku "21COE" Joint Workshop on Nano-Science in Energy Technology, Sept.27-28, (2004), MIT, Cambridge, MA. pp. O-09-1 to O-09-6

- Joshua L. Hertz, Anja Bieberle and Harry L. Tuller, Characterization of the Electrochemical Performance of YSZ Thin Films with Nanometer-Sized Grain Structure, Proc. MIT-Tohoku "21COE" Joint Workshop on Nano-Science in Energy Technology, Sept.27-28, (2004), MIT, Cambridge, MA. pp. O-11-1 to O-11-6

- D. Doppalapudi, R. Mlcak, J. Chan, H. Tuller, A. Bhattacharya, and T. Moustakas, MBE Grown AlN Films on SiC for Piezoelectric MEMS Sensors, in GaN and Related Alloys--2003 (MRS Symp. Proc. Vol 798), Editors, H. M. Ng, M. Wraback, K. Hiramatsu and N. Grandjean, Materials Research Society, Warrendale, PA, (2004), pp.403-408.

- Huankiat Seh, Harry L. Tuller, and Holger Fritze, Thin Film Praseodymium-Cerium Oxide Langasite-Based Microbalanc Gas Sensor, Journal of Electroceramics, 13, 799-803 (2004)

- Todd S. Stefanik and Harry L. Tuller, Nonstoichiometry and Defect Chemistry in Praseodymium-Cerium Oxide, Journal of Electroceramics, 13, 775-778 (2004)

- I. D. Kim, H. L. Tuller, H. S. Kim, and J. S. Park, High Tunability (Ba,Sr)TiO₃ Thin Films Grown on Atomic Layer Deposited TiO₂ and Ta₂O₅ Buffer Layers, Appl. Phys. Lett. 85, 4705-4707 (2004).

- T. Hyodo, J. Hertz and H.L. Tuller, Preparation of Macroporous Noble Metal Films by RF Magnetron Sputtering for Electrochemical Device Applications, in Chemical Sensors VI: Chemical and Biological Sensors and Analytical Methods (Proceedings, Vol. 2004-08), The Electrochemical Society, Pennington, N.J., (2004), pp. 10-16.

- J. Fleig, H.L. Tuller, and J. Maier, Electrodes and Electrolytes in Micro-SOFCs: A Discussion of Geometrical Constraints, Solid State Ionics 174, 261–270 (2004).

- H.L. Tuller, Highly Conducting Ceramics, in Ceramic Materials for Electronics, 3rd edition, Ed. R. Buchanan, Marcel Dekker, New York, Basel, (2004), pp. 87-140.

- B. M. Kulwicki, A. Amin, S. J. Lukasiewicz, S. Subramanyam and H.L. Tuller, Ceramic Sensors, in Ceramic Materials for Electronics, 3rd edition, Ed. R. Buchanan, Marcel Dekker, New York, Basel, (2004), pp. 377-429.

2005

- I.-D. Kim, Y. Avrahami, H. L. Tuller, Y.-B. Park, M. J. Dicken and H. A. Atwater, Study of Orientation Effect on Nanoscale Polarization in BaTiO₃ Thin Films using Piezoresponse Force Microscopy, Appl. Phys. Lett., 86, 192907 (2005).

- H.L. Tuller, MEMS-based Thin Film and Resonant Chemical Sensors, in

Electroceramic-based MEMS: Fabrication-Technology and Applications, N. Setter, editor, Springer, New York, NY, (2005), pp.3-17.

- S. Kim, G. Barbastathis and H.L. Tuller, MEMS for Optical Functionality, in Electroceramic-based MEMS: Fabrication-Technology and Applications, N. Setter, editor, Springer, New York, NY, (2005), pp.157-174.
- H. Seh, T. Hyodo and H. L. Tuller, Bulk Acoustic Wave Resonator as a Sensing Platform for NO_x at High Temperatures, Sensors and Actuators B 108, 547-552 (2005).
- A. Rothschild, S. J. Litzelman, H. L. Tuller, W. Menesklou, T. Schneider, and E. Ivers-Tiffée, Temperature-independent resistive oxygen sensors based on SrTi_{1-x}Fe_xO_{3-δ} solid solutions, Sensors and Actuators B 108, 223-230 (2005).
- S. J. Litzelman, A. Rothschild, H. L. Tuller, The Electrical Properties and Stability of SrTi_{0.65}Fe_{0.35}O_{3-δ} Thin Films for Automotive Oxygen Sensor Applications, Sensors and Actuators B 108, 231-237 (2005).
- H. Fritze, M. Schulz, H. Seh and H.L. Tuller, High Temperature Operation and Stability of Langasite Resonators, Semiconducting Materials for Sensing (MRS Symp. Proc. Vol. 828), Editors S. Seal, M.-I. Baraton, C. Parrish and N. Murayama, Materials Research Society, Warrendale, PA, (2005), p.145-150.
- G. N. Nielson, D. Seneviratne, F. Lopez-Royo, P.T. Rakich, Y. Avrahami, M.R. Watts, H. A. Haus, H.L. Tuller and G. Barbastathis, Integrated Wavelength-Selective Optical MEMS Switching Using Ring Resonator Filters, IEEE Photon. Technol. Lett., 17, 1190-1192 (2005).
- I.D. Kim, Y.W. Choi, H.L. Tuller, Low Voltage ZnO Thin Film Transistors with High-K Bi_{1.5}Zn_{1.0}Nb_{1.5}O₇ Gate Insulator for Transparent and Flexible Electronics, Appl. Phys. Lett., 87, 043509 (2005).
- L. Waller, S. Takahashi, D. Seneviratne, H.L. Tuller and G. Barbastathis, Microelectromechanical Wavelength-Selective Switching for Integrated Optics, in 2005 ASME International Mechanical Engineering Conference and Exposition, Orlando, FL, November (2005) (paper 81773), 5 pages.
- H. L. Tuller, A. Rothschild, T. Hyodo, H. Seh, and I.-D. Kim, Nanotechnology for Robust Sensor Device Technology, in Int. Symp Advanced Sensor Technologies, Nat. Inst. Adv. Ind. Sc. & Tech (AIST). Tokyo, Japan, June 10, (2005), p.9-16.
- H. Fritze, D. Richter, H.L. Tuller, Simultaneous Detection of Atmosphere Induced Mass and Conductivity Variations Using High Temperature Resonant Sensors, Sensors and Actuators B 111, 200-206 (2005).
- H. Seh and H.L. Tuller, Defects and Transport in Langasite II: Donor Doped La₃Ga_{4.75}Nb_{0.25}SiO₁₄, J. Electroceramics. 15, 193-202 (2005).
- K.-T. Kang, M.-H. Lim and H.-G. Kim, Y.-W. Choi and H. L. Tuller, I.-D. Kim and J.-M. Hong, Mn-doped Ba_{0.6}Sr_{0.4}TiO₃ high-K Gate Dielectrics for Low Voltage Organic Transistor on Polymer Substrate" Appl. Phys. Lett., 87, 242908 (2005).
- D. Kek-Merl, J. Lappalainen, H.L. Tuller, Electrical Properties of Nanocrystalline CeO₂ Thin Films Deposited by In Situ Pulsed Laser Deposition, J. Electrochem. Soc., 153, J15-J20 (2005).
- Y.W. Choi, I.-D. Kim, H. L. Tuller, and A.I. Akinwande, Low-Voltage Organic Transistors and Depletion-Load Inverters With High-K Pyrochlore BZN Gate Dielectric on Polymer Substrate, IEEE Trans. Electron Devices, 52, 2819-2824 (2005).
- H. Takamura, H. Kakuta, A. Kamegawa, M. Okada and H.L. Tuller, Oxide-Ion Transport in

Gadolinium Zirconate - Titanates under High Pressure, Mater. Res. Soc. Symp. Proc. 835, K2.10.1- K2.10.5 (2005).

2006

- I.-D. Kim, A. Rothschild, T. Hyodo, and H. L. Tuller, Microsphere Templating as Means of Enhancing Surface Activity and Gas Sensitivity of $\text{CaCu}_3\text{Ti}_4\text{O}_{12}$ Thin Films, *Nano Lett.*, 6, 193-198 (2006)
- H. Seh and H. L. Tuller, Defects and Transport in Langasite I: Acceptor-doped $\text{La}_3\text{Ga}_5\text{SiO}_{14}$, *Journal of Electroceramics*, 16, 115–125 (2006).
- A. Rothschild and H. L. Tuller, Gas Sensors: New Materials and Processing Approaches, *Journal of Electroceramics*, 17, 421-425 (2006).
- T. Hyodo, A. Bieberle-Hütter, J. L. Hertz, and H. L. Tuller, Three Dimensional Arrays of Hollow Gadolinia-doped Ceria Microspheres Prepared by R.F. Magnetron Sputtering Employing PMMA Microsphere Templates, *Journal of Electroceramics*, 17, 695-699 (2006).
- H.-S. Kim, I.-D. Kim, K.-B. Kim, T.-S. Yun, J.-C. Lee, H. L. Tuller, W.-Y. Choi, and H.-G. Kim, Low Frequency and Microwave Performances of $\text{Ba}_{0.6}\text{Sr}_{0.4}\text{TiO}_3$ Films on Atomic Layer Deposited TiO_2 /High Resistivity Si Substrates, *Journal of Electroceramics*, 17, 421-425, (2006).

- I.-D. Kim, A. Rothschild and H. L. Tuller, Direct Current Bias Effects on Grain Boundary Schottky Barriers in $\text{CaCu}_3\text{Ti}_4\text{O}_{12}$, *Appl. Phys. Lett.*, 88, 072902 (2006).
- A. Bieberle-Hütter, H. L. Tuller, Fabrication and Structural Characterization of Interdigitated Thin Film $\text{La}_{1-x}\text{Sr}_x\text{CoO}_3$ (LSCO) Electrodes, *Journal of Electroceramics*, 16, 151-157, (2006).
- A. Rothschild, W. Menesklou, H. L. Tuller, and E. Ivers-Tiffée, Electronic Structure, Defect Chemistry, and Transport Properties of $\text{SrTi}_{1-x}\text{Fe}_x\text{O}_{3-y}$ Solid Solutions, *Chemistry of Materials*, 18, 3651-3659 (2006).
- A. Bieberle-Hütter, M. Søgaard, and H. L. Tuller, Electrical and Electrochemical Characterization of Microstructured Thin Film $\text{La}_{1-x}\text{Sr}_x\text{CoO}_3$ Electrodes, *Solid State Ionics*, 177, 1969-1975 (2006).
- I.-D. Kim, A. Rothschild, B. H. Lee, D. Y. Kim, S. M. Jo, and H. L. Tuller, Ultrasensitive Chemiresistors Based on Electrospun TiO_2 Nanofibers, *Nano Letters.*, 6, 2009-2013, (2006); doi: 10.1021/nl061197h
- M.-H. Lim, K. T. Kang, and H.-G. Kim, I.-D. Kim, Y. W. Choi, and H. L. Tuller, Low Leakage Current - stacked $\text{MgO}/\text{Bi}_{1.5}\text{Zn}_{1.0}\text{Nb}_{1.5}\text{O}_7$ Gate Insulator - for Low Voltage ZnO Thin Film Transistors, *Appl. Phys. Lett.*, 89, 202908 (2006).
- H. L. Tuller, Ionic Conduction and Applications, in *Springer Handbook of Electronic and Photonic Materials*, S. Kasap and P. Capper, Eds., Springer, New York: Springer Verlag, 2006, pp. 213-228. Invited chapter.
- H. Fritze, M. Schulz, H. Seh, and H. L. Tuller, Sensor Application-related Defect Chemistry and Electromechanical Properties of Langasite, *Solid State Ionics*, 177, 2313–2316 (2006).

- H. Fritze, M. Schulz, H. Seh, H. L. Tuller, S. Ganschow, and K. Jacobs, High-temperature Electromechanical Properties of Strontium-doped Langasite, *Solid State Ionics*, 177, 3171–3174 (2006).
- P. Hofmann, K. Jacobs, H. Federmann, M. Schulz, H. Fritze, and H. L. Tuller, Growth and

High-temperature Properties of Gallium Orthophosphate, *Solid State Ionics*, 177, 3175-3178 (2006).

- J. Hiltunen, D. Seneviratne, R. Sun, M. Stolfi, H. L. Tuller, J. Lappalainen, and V. Lantto, BaTiO₃ - SrTiO₃ Multilayer Thin-Film Electro-Optic Waveguide Modulator, *Appl. Phys. Lett.*, 89, 242904-6 (2006).

2007

- J. L. Hertz and H. L. Tuller, Nanocomposite Platinum-Yttria Stabilized Zirconia Electrode and Implications for Micro Solid Oxide Fuel Cell Operation, *J. Electrochem. Soc.*, 154, B413-B418 (2007).

- J. L. Hertz and H.L. Tuller, Measurement and finite element modeling of triple phase boundary-related current constriction in YSZ, *Solid State Ionics*, 178, 915-923 (2007).

- H. Seh, H. Fritze, and H. L. Tuller, Defect Chemistry of Langasite III: Predictions of Electrical and Gravimetric Properties and Application to Operation of High Temperature Crystal Microbalance, *J. Electroceramics*, 18, 139-147 (2007).

- A. Rothschild and H. L. Tuller, Resistive Oxygen Sensors (Chapter 6) in *Science and Technology of Chemiresistor Gas Sensors*, Editors: D. K. Aswal and S. K. Gupta, Nova Science Publishers,

- Hauppauge, NY (2007), p.215-256. Invited chapter.

2008

- A. Bieberle-Hütter, J. L. Hertz, and H. L. Tuller, Fabrication and Electrochemical Characterization of Planar Pt-CGO Microstructures, *Acta Materiali*, 56, 177-187 (2008), doi:10.1016/j.actamat.2007.09.006

- I.-D. Kim, A. Rothschild, D.-J. Yang, and H. L. Tuller, Macroporous TiO₂ Thin Film Gas Sensors Obtained Using Colloidal Templates, *Sens. Actuators B: Chem.* 130, 9–13 (2008) doi:10.1016/j.snb.2007.07.092

- J. Hiltunen, J. Lappalainen, J. Puustinen, V. Lantto, and H. L. Tuller, Size-dependent Optical Properties of BaTiO₃ - SrTiO₃ Superlattices, *Optics Express*, 16, 8219-8228 (2008)

- S.J. Litzelman, J.L. Hertz, W.C. Jung and H.L. Tuller, Opportunities and Challenges in Materials Development for Thin Film Solid Oxide Fuel Cells, *Fuel Cells*, 8, 294-302 (2008). doi: 10.1002/fuce.200800034

- W.C.Jung and H.L. Tuller, Investigation of Cathode Behavior of Model Thin Film SrTi_{1-x}FexO_{3-δ} (x =0.35 and 0.5) Mixed Ionic-Electronic Conducting Electrodes, *J. Electrochem. Soc.*, 155, B1194-B1201 (2008). DOI: 10.1149/1.2976212

- Y. S. Jung, W.C. Jung, H.L. Tuller, C. A. Ross, Nanowire Conductive Polymer Gas Sensor Patterned Using Self-Assembled Block Copolymer Lithography, *Nano Lett.* 8, 3776-3780 (2008). DOI: 10.1021/nl802099k

2009

- J. L. Hertz and H. L. Tuller, Micro-fuel Cells in A. Mitsos and P.I. Barton (eds.), *Microfabricated Power Generation Devices: Design and Technology*, Wiley-VCH, Weinheim, Germany, 2009, pp.51-80.

- W.C. Jung, J. L. Hertz, H. L. Tuller, Enhanced Ionic Conductivity and Phase Meta-stability of Nano-sized Thin Film Ytria-doped Zirconia (YDZ), *Acta Materialia*, 57, 1399-1404 (2009).
- H. L. Tuller, S. J. Litzelman and W.C. Jung, Micro-ionics: Next Generation Power Sources, *Phys. Chem. Chem. Phys.*, 11, 3023 – 3034 (2009). DOI: 10.1039/b901906e.
- S. J. Litzelman, R. A. De Souza, B. Butz, and H. L. Tuller, M. Martin, and D. Gerthsen, Heterogeneously Doped Nanocrystalline Ceria Films by Grain Boundary Diffusion: Impact on Transport Properties, *J. Electroceramics* 22, 405-415 (2009), published online February 2008. <http://dx.doi.org/10.1007/s10832-008-9445-y>
- J. Hiltunin, D. Seneviratne, R. Sun, M. Stolfi, H.L. Tuller, J. Lappalainen and V. Lanto, Crystallographic and Dielectric Properties of Highly Oriented BaTiO₃ Thin Films: Influence of Oxygen Pressure Utilized During Pulsed Laser Deposition, *J. Electroceramics*, 22, 395-404 (2009), published online 8 March 2008. 10p. DOI 10.1007/s10832-008-9443-0.
- J. Hiltunin, D. Seneviratne, H.L. Tuller, J. Lappalainen and V. Lanto, Optical Properties of BaTiO₃ Thin Films: Influence of Oxygen Pressure Utilized During Pulsed Laser Deposition, *J. Electroceramics*, 22, 416-420 (2009), published online 7 March 2008. 5p. doi: 10.1007/s10832-008-9463-9.
- J. L. Hertz, A. Rothschild, and H. L. Tuller, Highly Enhanced Electrochemical Performance of Silicon-Free Platinum - Ytria Stabilized Zirconia Interfaces, *J. Electroceramics*. 22, 428-435 (2009), published online March 08. doi:10.1007/s10832-008-9475-5
- H. L. Tuller, W.C. Jung, K. Haga, Investigation of Cathode Behavior of Model Thin Film SrTi_{1-x}FexO_{3-δ} Mixed Ionic-Electronic Conducting Electrodes, in *Solid-State Ionics—2008*, edited by E. Traversa, T. Armstrong, K. Eguchi, M.R. Palacin (Mater. Res. Soc. Symp. Proc. Volume 1126, Warrendale, PA, 2009), 1126-S01-01 to -04.
- W. Jung and H.L. Tuller, Impedance Study of SrTi_{1-x}FexO_{3-δ} (x = 0.05 to 0.80) Mixed Ionic-Electronic Conducting Model Cathode, *Solid State Ionics*, 180, 843–847 (2009); doi:10.1016/j.ssi.2009.02.008.
- S.J. Litzelman and H.L. Tuller, Modulation of Mixed Conductivity in Nanocrystalline Electrolytes by Heterogeneous Doping, *ECS Transactions*, ECS Trans. 16 (51), 3-12 (2009); *Solid State Ionic Devices 6 –Nano Ionics*, Editors: E. Wachsman, J. Weidner, K. Abraham, E. Traversa, S. Yamaguchi, K. Zaghbi, R. Mukundan and S. Minteer, Electrochemical Society Meeting, October 12-17, 2008, Honolulu, HI.
- W. Jung and H.L. Tuller, Investigation of Cathode Behavior and Surface Chemistry of Model Thin Film SrTi_{1-x}FexO_{3-δ} Electrode, *ECS Trans.* 25, 2775-2782 (2009) - *Solid Oxide Fuel Cells 11 (SOFC-XI)*, The Electrochemical Society.
- W. Jung, K. Sahner, A. Leung, H.L. Tuller, Acoustic Wave-Based NO₂ Sensor: Ink-jet Printed Active Layer, *Sensor and Actuators, B*, 141, 485–490 (2009); published online 15 July 2009; doi:10.1016/j.snb.2009.07.010
- S.J. Litzelman and H.L. Tuller, Measurement of Mixed Conductivity in Thin Films with Microstructured
- Hebb-Wagner Blocking Electrodes, *Solid State Ionics*, 180, 1190–1197 (2009): doi:10.1016/j.ssi.2009.05.013.
- D. S. Jacob, A. Rothschild, H. L. Tuller, A. Gedanken, In situ Sonochemical Hydrolysis and Deposition of Composite Layers of Ionic Liquid Entrapped in Colloidal Silica Network and their Application as Sensors for Various Gases, *Ultrasonics Sonochemistry*, 2009; doi:10.1016/j.ultsonch.2009.12.015

2010

- C. Solís, W.C. Jung, H. L. Tuller and J. Santiso, Defect Structure, Charge Transport Mechanisms and Strain Effects in Sr₄Fe₆O_{12+δ} Epitaxial Thin Films, *Chem. Mater.*, 22, 1452–1461 (2010); doi: 10.1021/cm902957r.
- N. Yamamoto, D. J. Quinn, N. Wicks, J. L. Hertz, J. Cui, H. L. Tuller and B.L. Wardle, Nonlinear Thermomechanical Design of Microfabricated Thin Plate Devices in the Post-buckling Regime,
 - *J. Micromech. Microeng.* 20, 035027-035036 (2010); doi:10.1088/0960-1317/20/3/035027
- H. L. Tuller, S. J. Litzelman, and G. C. Whitfield, Electrical Conduction in Nanostructured Ceramics, in *Ceramics Science and Technology Volume 2: Properties*, Edited by R. Riedel and I-W. Chen, Wiley-VCH, Weinheim, Germany, 2010, pp. 697-727.
- I.-D. Kim, E.-K. Jeon, S.-H. Choi, D.-K. Choi, and H. L. Tuller, Electrospun SnO₂ Nanofiber Mats with Thermo-compression Step for Gas Sensing Applications, *J. Electroceramics*, 25, 159-167 (2010); doi: 10.1007/s10832-010-9607-6.
- K. Sahner, H.L. Tuller, Novel Deposition Techniques for Metal Oxides - Prospects for Gas Sensing, *J. Electroceram.*, 24, 1385-3449 (2010) published online September 25, 2008. doi: 10.1007/s10832-008-9554-7. Feature article.
- S. R. Bishop and H. L. Tuller, W. Higgins, A. Churilov, G. Ciampi, L. Cirignano, H. Kim, F. Olschner, J. Tower, K. Shah, Defects and Ionic Conductivity in Single Crystal TlBr, *ECS Transactions*, 28 - Ionic and Mixed Conducting Ceramics 7, Vancouver, Canada. Accepted for publication, 7 July, 2010.
- P. Somasundaran, M. Chin, U. T. Latosiewicz, H. L. Tuller, B. Barbiellini, V. Renugopalakrishnan.
 - *Nanoscience and Engineering for Robust Biosolar Cells*, in *Bionanotechnology: Global Prospects*, Ed. David Reisner, CRC Press, Boca Raton, FL, USA, 2011. Accepted for publication.
 - H.L. Tuller, S.R. Bishop, Tailoring Material Properties through Defect Engineering, *Chemistry Letters*, Invited Feature article. *Chem. Lett.* 39, 1226-1231 (2010). doi:10.1246/cl.2010.1226. Highlight Review.
- N. G. Cho, G.C. Whitfield, D. J. Yang, H.-G. Kim, H. L. Tuller, and I.-D. Kim, Facile Synthesis of Pt-Functionalized SnO₂ Hollow Hemispheres and Their Gas Sensing Properties, *J. Electrochem. Soc.*, Accepted August 26, 2010.
- K.S. Brinkman, H. Takamura, H.L. Tuller and T. Iijima, The Oxygen Permeation Properties of Nano-Crystalline CeO₂ Thin Films, *J. Electrochem. Soc.*, 157, B1852-B1857 (2010).