

## JOURNAL PUBLICATIONS

---

- 1 Gallena, S.; Tian, W.; Solomon, N. P.; Johnson, A. T.; Vossoughid, J.; **Sarles, S. A.**, Validity of a new respiratory-resistance measurement device to detect glottal-area change. *Journal of Voice* 2013, **in print**.
- 2 Najem, J.; **Sarles, S. A.**; Akle, B.; Leo, D. J., Biomimetic jellyfish-inspired underwater vehicle actuated by ionic polymer metal composite actuators. *Smart Materials and Structures* 2012, **21** (9), 094026.
- 3 **Sarles, S. A.**; Leo, D. J., Membrane-based biomolecular smart materials. *Smart Materials and Structures* 2011, **20**, 094018.
- 4 **Sarles, S. A.**; Madden, J. D. W.; Leo, D. J., Hair cell inspired mechanotransduction with a gel-supported, artificial lipid membrane. *Soft Matter* 2011, **7** (10), 4644-4653.
- 5 **Sarles, S. A.**; Stiltner, L. J.; Williams, C. B.; Leo, D. J., Bilayer Formation between Lipid-Encased Hydrogels Contained in Solid Substrates. *ACS Applied Materials & Interfaces* **2010**, **2** (12), 3654-3663.
- 6 **Sarles, S. A.** and D. J. Leo, Physical encapsulation of droplet interface bilayers for durable, portable biomolecular networks. *Lab Chip* 2010. **10** (6), 710-717.
- 7 **Sarles, S. A.** and D. J. Leo, Regulated attachment method for reconstituting lipid bilayers of prescribed size within flexible substrates. *Analytical Chemistry*, 2010. **82**(3): p. 959-966.
- 8 **Sarles, S. A.** and D. J. Leo, Tailored current—voltage relationships of droplet-interface bilayers using biomolecules and external feedback control. *Journal of Intelligent Material Systems and Structures*, 2009. **20**(10): p. 1233-1247.
- 9 **Sarles, S. A.** and D. J. Leo, Consolidation of U-Nyte® epoxy-coated carbon-fiber composites via temperature-controlled resistive heating. *Journal of Composite Materials*, 2008. **42**(24): p. 2551-2566.

## BOOK CHAPTERS

---

- 1 Sundaresan, V.-B.; Sarles, S. A.; Leo, D. J., Bioderived Smart Materials. *Encyclopedia of Nanotechnology*. Bhushan, B., Ed. Springer Netherlands: 2012; pp 201-213.

## CONFERENCE PROCEEDINGS AND PAPERS

---

† DENOTES ORAL PRESENTATION GIVEN

- 1 **AWARDED BEST STUDENT PAPER** Tamaddoni, N.; Sarles, A., Fabrication and characterization of a membrane based hair cell sensor that features soft hydrogel materials. *ASME Conference Proceedings* 2012, **in print**.
- 2 Taylor, G.; Sarles, A.; Donald, J. L., Detection of Botulinum Neurotoxin/A insertion using an encapsulated interface bilayer. *ASME Conference Proceedings* 2012, **in print**.
- 3 †Tamaddoni, N. J., C. P. Stephens, et al. Fabricating neuromast-inspired gel structures for membrane-based hair cell sensing, *Proceedings of SPIE*, Vol. 8339, p. 8339-08 (2012).
- 4 Garrison, K. L., S. A. Sarles, et al. Formation, encapsulation, and validation of membrane-based artificial hair cell sensors, *Proceedings of SPIE*, Vol. 8339, p. 8339-0B (2012).
- 5 Pinto, P. A., K. Garrison, et al. A bio-inspired aquatic flow sensor using an artificial cell membrane, *Proceedings of SPIE*, Vol. 8339, p. 8339-07 (2012).
- 6 Young, T.T., et al. Study of the effects of ionic liquids on lipid bilayers. *Proceedings of SPIE* Vol. 8339, p. 8339-06 (2012).
- 7 Najem, J., B. Akle, et al. (2011). Design and development of a biomimetic jellyfish robot that features ionic polymer metal composite actuators. *ASME Conference Proceedings* 2011 – SMASIS 2011 Conference, Scottsdale, AZ, September 18-21, 2011.

- 8 Pinto, P. A., S. A. Sarles, et al. (2011). Bio-inspired flow sensors fabricated from carbon nanomaterials. ASME Conference Proceedings 2011 – SMASIS 2011 Conference, Scottsdale, AZ, September 18-21, 2011.
- 9 †Sarles, S. A., K. L. Garrison, et al. Formation and encapsulation of biomolecular arrays for developing arrays of membrane-based artificial hair cell sensors. ASME Conference Proceedings 2011 – SMASIS 2011 Conference, Scottsdale, AZ, September 18-21, 2011.
- 10 †Sarles, S. A.; Leo, D. J., Cell-inspired electroactive polymer materials incorporating biomolecular materials. Proceedings of SPIE Vol. 7976, p. 797626-9 (2011).
- 11 †Sarles, S. A.; Leo, D. J., Hair cell sensing with encapsulated interface bilayers. Proceedings of SPIE Vol. 7975, p. 797509-11 (2011).
- 12 Brush, Z., L. Schultz, J. Vanness, K. Farinholt, A. Sarles, and D. Leo, Development of Polymer “Chips” used in Medical Diagnostics, Proceedings of IMAC, Jacksonville, FL, Jan. 31- Feb. 4, 2011.
- 13 Sarles, S.A. and D.J. Leo. Biomolecular material systems with encapsulated interface bilayers. in 2010 Fall Materials Research Society Meeting. 2010. Boston, MA: MRS.
- 14 †Sarles, S. A. and D. J. Leo, Encapsulated interface bilayers for durable biomolecular materials. ASME Conference Proceedings, 2010. 2010 (accepted).
- 15 †Sarles, S. A., Leo, D. J., Physical encapsulation and controlled assembly of lipid bilayers within flexible substrates, Proceedings of SPIE Vol. 7643, 764321 (2010).
- 16 †Sarles, S. A. and D. J. Leo, Durable biomolecular assemblies for protein-powered device concepts. ASME Conference Proceedings, 2009. 2009(48975): p. 665-674.
- 17 †Sarles, S. A., Ghanbari Bavarsad, P., Leo, D. J., Incorporation and characterization of biological molecules in droplet-interface bilayer networks for novel active systems, Proceedings of SPIE Vol. 7288, 72880H (2009).
- 18 †**AWARDED BEST STUDENT PAPER** – Sarles, S. A. and D. J. Leo, Feedback control of biomolecular systems formed from droplet-interface bilayers. ASME Conference Proceedings, 2008. 2008(43321): p. 361-375.
- 19 Duncan, A. J., et al., Ionomer design for augmented charge transport in novel ionic polymer transducers. ASME Conference Proceedings, 2008. 2008(43314): p. 121-129.
- 20 Sundaresan, V. B., Sarles, S. A., Leo, D. J., Characterization of porous substrates for biochemical energy conversion devices, Proceedings of SPIE Vol. 6928, 69280K (2008).
- 21 Duncan, A. J., Sarles, S. A., Leo, D. J., et al., Optimization of active electrodes for novel ionomer-based ionic polymer transducers, Proceedings of SPIE Vol. 6927, 69271Q (2008).
- 22 Duncan, A. J., et al., Influence of topology and morphology in sulfonated polysulfone transducers. POLY Preprints, 2008. **49**(1): p. 1022-1023.
- 23 Sarles, S. A. V. B. Sundaresan, D. J. Leo: Electrical impedance analysis of phospholipid bilayer membranes for enabling engineering design of bio-based devices, in Biomolecular and Biologically Inspired Interfaces and Assemblies, edited by J.B.-H. Tok (Mater. Res. Soc. Symp. Proc. Volume 1061E, Warrendale, PA, 2008), 1061-MM03-18.
- 24 †Sarles, S. A., Sundaresan, V. B., Leo, D. J., Study of supported bilayer lipid membranes for use in chemo-electric energy conversion via active proton transport, Proceedings of SPIE Vol. 6769, 67690N (2007).
- 25 Sundaresan, V. B., Sarles, S. A., Leo, D. J., Chemoelectrical energy conversion of adenosine triphosphate, Proceedings of SPIE Vol. 6525, 65250P (2007).
- 26 Sundaresan, V. B., S. A. Sarles, B. J. Goode, D. J. Leo: Chemo-electrical energy conversion of adenosine triphosphate in a biological ion transporter, in Smart Dielectric Polymer Properties, Characterization and Their Devices, edited by V. Bharti, Z. Cheng, Q.M. Zhang, Y. Bar-Cohen, G.M. Sessler (Mater. Res. Soc. Symp. Proc. 949E, Warrendale, PA, 2007), 0949-C02-02.
- 27 Sundaresan, V. B., S. A. Sarles, and D. J. Leo: Stack of Biocells converting ATP to electrical power and possible applications, in Biosurfaces and Biointerfaces, edited by M. Firestone, J. Schmidt, N. Malmstadt (Mater. Res. Soc. Symp. Proc. 950E, Warrendale, PA, 2007), 0950-D01-03.
- 28 †Sarles, S. A., D. J. Leo, and J. Riffle. Improved composite rigidization via temperature-controlled resistive heating, in Materials Technology for Gossamer Structures, 47th AIAA/ASME/ASCE/AHS/ASC

- Structures, Structural Dynamics, and Materials Conference, 14th AIAA/ASME/AHS Adaptive Structures Conference. (AIAA, 2006), AIAA-2006-1895.
- 29 †Sarles, S. A., Leo, D. J., Active rigidization of carbon-fiber reinforced polymer composites for ultra-lightweight space structures, Proceedings of SPIE Vol. 6173, 617316 (2006).
- 30 †Sarles, S. A., T. Bullions, T. Mefford, J. Riffle, D. J. Leo: Carbon fiber reinforced rigidizable space structures, in Materials and Devices for Smart Systems II, edited by Yasubumi Furuya, Ji Su, Ichiro Takeuchi, Vijay K. Varadan, John Ulicny (Mater. Res. Soc. Symp. Proc. 888, Warrendale, PA, 2006), 0888-V02-06.
- 31 Kass, M.D., et al. Assessment of corrosivity associated with exhaust gas recirculation in a heavy-duty diesel engine. SAE 2005 World Congress & Exhibition, (SAE 2005), 2005-01-0657.

## INVITED LECTURES

---

- 1 Sarles, S. A., "Membrane assemblies for engineered biomolecular materials and systems," Center for Structural Molecular Biology, Oak Ridge National Laboratory, Oak Ridge, TN, January 17, 2013.
- 2 Sarles, S. A., "Membrane-based smart materials for sensing," Engineering Institute—Dynamics Summer School, Los Alamos National Laboratory, Los Alamos, NM, July 19, 2012.
- 3 Sarles, S. A., "Biomolecular material systems for engineering applications," The University of Tennessee Medical Center, Seminar Series, Knoxville, TN, January 10, 2012.
- 4 Sarles, S. A., "Biomolecular material systems for engineering applications," The University of Tennessee Medical Center, Vascular Surgery Group, Knoxville, TN, October 14, 2011.