CURRICULUM VITAE

Name Sankha Bhowmick

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Date/Place of Birth June 1, 1970; Siliguri, India

Education

1992	B.E.	Mechanical Engineering	Jadavpur University (*Honors*)
1996	M.S.	Mechanical Engineering	Villanova University
2000	Ph.D.	Mechanical Engineering	University of Minnesota

Postdoctoral Training

2001	PostDoc	Surgery – Massachusetts General Hospital, Harvard Medical School

Academic Appointments

2014- present	Professor, Department of Mechanical Engineering University of Massachusetts Dartmouth
2007-2014	Associate Professor, Department if Mechanical Engineering, University of Massachusetts Dartmouth
2012-present	Adjunct Professor, Department of Bioengineering, University Of Massachusetts Dartmouth
2002- 2007	Assistant Professor, Department of Mechanical Engineering University of Massachusetts Dartmouth

Professional Appointment

1992-1994	Executive Engineer - Process Development, Consumer Electronics Factory, Philips India Ltd., Kolkata, India

Hospital or Affiliated Institution Appointments

2007-2012	Visiting Scholar, Massachusetts General Hospital, Harvard Medical School
2000-2007	Research Associate, Massachusetts General Hospital Research Associate, Harvard Medical School

Other Institutional Appointments

2000-2001	Research Associate, Massachusetts General Hospital, Shriners Hospital for Children, Harvard Medical School, MA.
1996-2000	Graduate Research Assistant, University of Minnesota, MN.
1995-1996	Graduate Research Assistant, Villanova University, PA.

Academic Administrative Appointments

2002-2009	Laboratory Committee Member, Department of Mechanical Engineering
2002-2010	Departmental Representative, Biomedical Engineering Program
2002-2003	Vice-President, Sigma, Xi, UMass Dartmouth Chapter
2003-2004	Program Co-Director, Biomedical Engineering Program, UMass Dartmouth
2003-2004	President, Sigma Xi, UMass Dartmouth Chapter
2003-2005	Advisor, ASME Student Chapter
2003-2005	Member, Selection Committee for Chancellor's Colloquium Series
2007-2008	College Scholarship Committee
2007-2012	Departmental Representative to College Academic Council
2011-2012	Chair, College Academic Council
2007-2010	Departmental Safety Committee
2010-2014	Program Co-director, Bioengineering and Biotechnology Ph. D Program
2011- 2014	Coordinator of IIT summer internship program at UMass Dartmouth
2010- 2014	Mechanical Engineering Seminar Series Coordinator
2013- 2014	Curriculum Committee Chair, Department of Mechanical Engineering
2012- present	University Studies Committee
2014- present	Department Chairperson

Scientific Activities

External Grant Support

National Textile Center	06/01/03-05/31/06
Bio-active bandages	$284,000

The goal of this project is to implant living mammalian cells into fibers which will have application in therapy and detection.

ABS Global Bovine sperm desiccation preservation	09/01/05-08/31/07 $130,000
National Textile Center Transport In 3-D Nanofab Geometries	06/01/06-05/31/09 $167,000
National Science Foundation Collaborative Research: Use of Novel Heat Spreader Technology for Reduction of High Temperature Related Rutting in Asphalt Pavements	10/01/09-09/30/13 $134,353
Gradiant Research LLC Tonsil Thermal Therapy	06/01/09-12/31/09 $33,000
Covidien Functionalization of Polymer fibers for Tissue Engineering	06/10/10-12/31/10 $30,000
National Science Foundation MRI: Acquisition of Nanospider for Electrospinning (co PI)	10/10/10 $118,350
National Science Foundation Northeast Ethics Education Partnership (NEEP)	09/01/13-08/31/16 $68,000
Internal Grant: Dean's Cluster Bioenvironmental Cluster Grant	05/01/09-04/30/11 $50,000
Internal grant: Healey Foundation New generation functionalized scaffolds	07/01/12-06/30/13 $6,700
Provost's Internal grant	06/01/16-08/31/18 $3000

Honors and Awards

1992	Bachelors degree with honors score
1995-1996	James Birle Chair Research Fellowship in Thermal Science- Villanova University
1996	Nominated as student member for the Sigma Xi Society
1996-1997	Forstrom Memorial Fellowship in Biomedical Engineering - University of Minnesota
2003	Co-author of best poster award at European Urology conference in Madrid, Spain
2005	NTC Conference Award for best project in Fabrication section
2006	Best poster award in fabrication category at NTC forum

Membership in Professional Societies

Cryobiology
American Society for Mechanical Engineers (ASME)
Society for Thermal Medicine
Sigma Xi

Conference Session Chairs

- Cryobiology 2002, Breckenridge, CO. "Cell-Stasis: Dry- State Preservation" Co-Chair with Mehmet Toner
- ASME IMECE 2002, New Orleans, LA. " Metrics of Thermal Injury" Co-chair with Neil T. Wright
- Summer Heat Transfer Conference, 2003, Las Vegas NV. "Modeling of Bioheat and Mass Transfer Processes"
- Summer Bioengineering Conference, 2003, Miami, FL. "Topics in Bioheat Transfer"
- ASME IMECE 2004, Anaheim, CA "Whole Body and Local Tissue Bioheat Transfer Quantification for Wind Chill and Thermal Therapy"
- Cryobiology, 2005, Minneapolis, MN. "Drying and Vitrification-I"
- ASME Summer Bioengineering Conference, 2010, Naples, FL.
- ASME Summer Bioengineering Conference, 2011, Nemacolin, PA (Track co-Chair/Session Chair))
- ASME Summer Bioengineering Conference, 2012, Fajardo, Puerto Rico (Track co-Chair/Session Chair)
- ASME 2nd NEMB conference, 2013, Boston, MA (Session Chair)
- ASME Summer Heat Transfer Conference, 2013, Minneapolis, MN (Track Chair)
- Organizer of Symposium on Nanothermal Medicine, 2013, Minneapolis, MN
- Invited panelist to NIH Workshop on "Aquatic Biomedical Models Cryopreservation on January 7th, 2017 in Birmingham, AL. Presentation: Biopreservation of gametes. Participated in discussion on developing a repository of aquatic biomedical species gamete preservation

Extramural Invited Presentations

- Jadavpur University, Calcutta, India; January 2006; Department of Mechanical Engineering, " Tissue Engineering: Principle and Applications."
- Louisiana State University, November 2006; Department of Mechanical Engineering, "Electrospun fiber architecture as modulator of cellular response in tissue engineering."

- University of Maryland at Baltimore County, December 2006; Department of Mechanical Engineering, "Electrospun fiber architecture as modulator of cellular response in tissue engineering."
- Villanova University, January 2007; Department of Mechanical Engineering.
- New England Radiation Physics Conference, June 15th 2007; " Applications of Supraphysiological Thermal Therapy for Treatment of Cancer."
- Oceanspray , Lakeville, MA, "Research Projects at UMass Bioengineering Research Lab: October 2007.
- IIT Kharagpur, August 12th 2008; Department of Mechanical Engineering "Thermophysical exploration of the role of disaccharides in anhydrobiotic engineering of mammalian cells for long-term storage of tissue engineered constructs."
- IIT Kharagpur, August 12th 2008; Department of Biotechnology, "Electrospun scaffolds as modulators of cell behavior in tissue engineering."
- Jadavpur University, August 14th 2008; Department of Mechanical Engineering, "Electrospinning for tissue engineering."
- Effects of electrospun scaffolds architecture in modulating cellular functions: *Covidien , May 2009*
- Harvesting Heat Energy from Asphalt Pavements and Reduction in Urban Heat Island Effects, *MIT Clean Energy Conference organized by Mass Clean Tech, Nov., 2009.*
- Desiccation preservation of mammalian cells at ambient temperatures: Bovine and Murine sperm models: *MERSC Research Talk, Brandeis University, March 2010*
- Sustainable Pavements: Strategies for lowering surface temperature of asphalt pavement and extraction of energy, *Mechanical Engineering Seminar Series, Worcester Polytechnic Institute, Worcester, MA, March 2011*
- Desiccation preservation of mammalian cells at ambient temperatures: *BU Mechanical Engineering Seminar Series, October, 2012*
- Tissue Engineering and Drug delivery using electrospun scaffolds, *WPI Biomedical Engineering and Civil Engineering, September 2014.*

Teaching Activities

Course Instructor

EGR 102: Introduction to Engineering (IMPULSE Course for Freshman)
EGR 111: Introduction to Engineering and Computing (freshmen)
EGR 232: Engineering Thermodynamics (for non-majors)
MNE 201: Thermodynamics-I laboratory
MNE 305: Thermodynamics-II laboratory
MNE 321: Thermodynamics-II
MNE 306: Fluid Mechanics laboratory
MNE 411: Heat Transfer
MNE 422: Energy Conversions (elective)
MNE 427: Fuel Cells
MNE 490: Biotransport
BMB 312: Transport for bioengineers
MNE 521: Graduate Thermodynamics
MNE 542: Convective Heat Transfer

MNE 525: Introduction to Bioengg
BMB 520: Quantitative Physiology
EGR 501: Engineering Ethics

Invited Lecture
MTX 101: Materials Science Introductory Course (Topic: Tissue Engineering)
MNE 525: Bioengineering Fundamentals (Topic: Supraphysiological Thermal Therapy)

Graduate Student Advising

Ph.D.

Ming Chen (2003-2009): Optimization of electrospun scaffold architecture for tissue engineering applications

Ranjan Sitaula (2005-2010): Development of desiccation preservation technologies for mammalian cellular preservation

Bao Liang Chen (2005-2009): Capturing Solar Energy and Reduction of Heat Island Effect from Asphalt Pavements (*Co-advisor @Worcester Polytechnic Institute, MA*)

Manisha Chopra (2009- 2016): Functionalization of biopolymers for drug delivery and environmental engineering applications

Shawn Regis (2009-2013): Tissue Engineering of skin and vasculature. *(graduating in October 2013)*

MS

James E Green (2003-2004): Isothermal desiccation and thermophysical properties of trehalose-water mixtures.

Bingyan Chen (2002-2004): Modeling of convective drying of sugar solutions

Ranjan Sitaula (2003-2005): Quantification of thermophysical state and interaction of trehalose – salt/ trehalose-biologics: Implication in the desiccation preservation of mammalian cells

Bhavik Shah (2003-2006): Evaluation and Analysis of important treatment parameters affecting the viability of the human liver cancer HepG2 cells under supraphysiological thermal therapy conditions

Daniel Borah (2006-2007): Development of laser micromachined μTAS systems for rapid toxin screening

Justin Reis (2006- 2008): Optimization of desiccation buffers for bovine sperm utilizing disaccharides

Suchil Suryadevara (2009-2011): Tonsil thermal Therapy

Matthew Oliviera (2009-2012): Thermophysical and Biophysical changes in cellular desiccation

Matthew Medas (2009-2011): Modeling and experimental studies for extraction of heat from pavements

Vinh Nyugyen (2012-2014): Modeling and experimental studies for extraction of heat from pavement

Alex Sinkevich (2012-2015): Modeling of convective desiccation of trehalose droplet

Alex Legendre (2016-2018): Measuring design fixation in Mechanical Engineering students

Graduate Students mentored

Zhongling Zhao, MS (2003) Development of polylaminate fabric based bioreactor

Wenjian Wang, MS (2003) Development of bioactive fabrics

Daniel W. Vieira, MS (2003) The effect of low frequency alternating electric fields on ice crystal nucleation in water

Guncha Ambrin, Ph. D (2004-) Development of microfluidics based biosensors

Eduardo E. Reagui Pizarro, MS (2006) Study of the viability of mammalian cells in liquid nano-droplets

Brent Collins, MS (2009), MS Controlled electrospinning for obtaining ordered fibers

Sina Youssefin, MS (2012)

Siddhartha Maiti, MS and Ph. D in Bioengineering (2016): Drug delivery using

electrospun fibers

Thesis Committee (in addition to being on the thesis committee of all the persons above)

Zhen Wang, MS(2006) Hydrodynamics and Collection Efficiency of Two-Phase Turbulent Jet Flow over a Rotating Sphere

Vidya Vadakoot, MS (2006) Factors affecting the instability threshold of negatively buoyant fountains

Dan Cong Nguyen, MS (2008) Application of Genetic Algorithms to Gene Interactive rules to design a process for preventing the formation of cancerous cells

Justin Jenne, MS (2008), Gurudutt Venkat, MS (2010)

Saly Khadum- MS Student at WPI (2011): Evaluation of rutting under the the effect of flowing water through pipes below the pavement

Chris Lake, MS (2013): Flocking of Carbon Fibers to improve thermal

conductivity.

Brian Blair, MS(2013); Michael Salvucchi, MS (2013); Behroozh Amirzadeh,

MS (2014); Milad Raksha, MS (2014); Leandre Bernard, MS (2015)

Vijay P Bhoominathan (2016)- BMEBT Ph. D

Wen Jin- Ph. D thesis (2017) – EAS Ph. D (*in progress)*

Graduate Student Mentoring (non-thesis)

Adam Young (2016) Psychology- Measuring Engineering Creativity

Rebecca Peterson (2017) Psychology- Measuring Engineering Creativity

Molly Mcarthy (2017) Psychology – Measuring creativity in Engineering

Christopher Simmons (2018) – Measuring Fixation and creativity in engineering

design

Undergraduate student mentoring

Curtis Mclaurkin (2002): Summer research assistant. Joined Dartmouth College graduate program.

Francesco Piscani (2008): Summer Research Assistant- LSAMP NSF Program at Bristol Community College

Jennifer Hunt (2008): Research Assistant

Heather Michaud (2008): Research Assistant

Andrea Clain (2010): Research Assistant

Steve Bender (2010): Research Assistant

Danilo Pereira (2012): Exchange student from Brazil

Felipe Amado deOliveira (2012): Exchange student from Brazil

Luis Mario Scwambach Costa (2013-2014): Exchange student from Brazil

Matthew Grota (2012-2014): Bioengineering

Nicole Pelletier (2014): Senior Honors advising

Senior Design Advising

Angus Mak and Christopher Lumping (2003): Design and development of an integrated thermal and desiccation microscopy stage *(2nd position in departmental senior design presentation)*

John V Costa (2004): Design and construction of an automated microbalance *(1st position in departmental senior design presentation)*

Dave Rastelli, Bryon Stevens and Erich Dryer (2005): Solar powered portable cooler

Daniel C Borah and Steven Hatley (2006): Microfluidics based devices for toxin screening

Erica Bohtelo, Ryan Brodeur and Nate Bolton (2008): Development of Biodiesel Processing facility at UMass Dartmouth Campus

Mike West, Dana Brown, Shawn Almond and Wade Ammouri (2008): Design of a solar heating pool for the Tripp Athletic Center at UMass Dartmouth

John Mackie, Kevin Brolin, Andrew Getto and Matt Swirbalus (2009): Wind turbines for power generation at University of Massachusetts Dartmouth

Ben Moberg, Brad Preston, Charles Hill, Chris Bealeiue (2010): Powering a clinic in Sierre Leone using renewable energy resources.

Alex Sinkevich, Brittney Cole, Benjamin Lawler, Eric O Connell (2012): Design of a vacuum chamber for curing silicon chips *(1st place winner)*

Shawn Harris, Chad Michael, Rob Polleys and Matthew Bates (2013): Surgical cutting drill for spinal discectomy *(3rd place winner)*

Kevin Zeppenfeld and Team (2014): Design of a vacuum oven for silicon wafer curing

Chris Jordan and Team (2014): Design of fuel extraction for a solid oxide fuel cell system

Vasker Neupen and Team (2015): Green line snow removal system

Justin DaRosa and Team (2016): Sandblasting Machine redesign *(Honorable mention)*

Limar Weis and Team (2016): Opthalmoscope Design

Tricia Thai, Aaron Mak, Marc Alburn, John Harrison, Akere Tambi (2018): Developing a sensor for wound healing

Josh Dennis, Joseph Rockcliffe, Rawson Randlette, Antonio Monteiro (2018): Condenser cleaning system for MBTA green line trains.

JOURNAL PUBLICATIONS

Bhowmick S., Khamis C. A., Bischof, J. C., 1998, "Response of a liver tissue slab to a hyperosmotic sucrose boundary condition: microscale cellular and vascular level effects," *Ann. NY Acad.Sci.*, Vol. 858, pp. 147-62

Bhowmick, S., Swanlund, D. J., and Bischof, J. C., 2000, "Supraphysiological thermal injury in Dunning AT-1 prostate tumor cells," *ASME J. Biomech., Engg*, Vol. 122, pp. 51-59

Bhowmick, S., Lulloff, L., Swanlund D. J., Coad, J. E., Hoey, M. F., and Bischof, J. C., 2001, "Evaluation of thermal therapy in an animal model of prostate cancer using a wet electrode RF probe," *Journal of Endourology.* , Vol. 15-6, pp. 629-640.

Bhowmick, S., Hoffmann, N. E, and Bischof, J. C., 2002, "Thermal therapy of normal and tumor tissue in the dorsal skin flap chamber," *Microvascular Research* , Vol. 64, pp. 170-173.

Chen, T., **Bhowmick, S.**, Sputtek, A., Fowler, A. and Toner, M., 2002, "The Glass Transition Temperature of Mixtures of Trehalose and Hydroxyethyl Starch, " *Cryobiology*, Vol. 44, pp. 301-306.

Bhowmick, S., Zhu, L., Mcginnins, L., Lawitts, J., Nath, B. D., Toner, M. and Biggers, J. D., 2003 "Preservation of Murine Spermatozoa Using Convective Drying at Ambient Temperature", *Biology of Reproduction*, Vol. 68, pp. 1779-1786.

Bhowmick, S., Coad, J. E., and Bischof, J. C.,2004 "*In vitro* thermal therapy in the Dunning AT-1 prostate tumor," *International Journal of Hyperthermia* Vol. 20-1, pp. 73-94.

Bhowmick, P., Coad, JE, **Bhowmick, S**., Pryor, JL, Larson, T, Rosette, J and Bischof, JC, 2004 "*In vitro* assessment of the efficacy of thermal therapy in human benign prostatic hyperplasia", *International Journal of Hyperthermia* Vol. 20, No. 4, pp. 421–439.

Mcginnins, L , Zhu, L.,. Lawitts, J., **Bhowmick, S.,** Toner, M. and Biggers, J. D., 2005 "Mouse sperm desiccated and stored in trehalose medium without freezing", *Biology of Reproduction*, Vol 73, pp. 627-633

Chen, B., Fowler, A, and **Bhowmick, S.**, 2006, "Forced and natural convective drying of trehalose/water thin films: Implication in the desiccation preservation of mammalian cells", *ASME Journal of Biomechanical Engineering*, Vol. 128(3), pp. 335-346.

Sitaula, R., and **Bhowmick, S**., 2006 "A study of the Thermophysical Properties and Moisture Sorption Characteristics of Trehalose-PBS Glasses", *Cryobiology*, Vol. 52, pp. 369-385.

Chen, M., Patra, P., Warner, S and **Bhowmick, S**., 2006, "Optimization of electrospinning process parameters for tissue engineering scaffolds," *Biophysical Reviews and Letters*, Vol. 1(2), pp. 189-214.

Shah, B and **Bhowmick, S**., 2006, "Evaluation of Important Treatment Parameters in Supraphysiological Thermal Therapy of Human Liver Cancer HepG2 Cells," *Annals of Biomedical Engineering*, Vol 34(6), pp. 1745-1757.

Chen, M., Patra, P., Warner, S and **Bhowmick, S.**, 2007, "Role of fiber diameter in adhesion and proliferation of NIH 3T3 fibroblast on electrospun polycaprolactone (PCL) scaffolds," *Tissue Engineering*, Vol. 13 (3), DOI: 10.1089/ten.2006.0205

Green JE, Sitaula R, Fowler AJ, Toner M and **Bhowmick S.**, 2007, "Enthalpic Relaxation of Convective desiccated trehalose-water glasses", *Thermochimica Acta* http://dx.doi.org/10.1016/j.tca.2006.10.014

Borgaonkar, P., Sharma, S., Chen, M, **Bhowmick, S.** and Schmidt, D. F., 2007, "Towards a Flexible, Biomimetic Approach to the Preparation of Polymer Scaffolds for Tissue Engineering" *Macromolecular Bioscience*, Vol. 7 (2); 201-207.

Chen B, **Bhowmick, S** and Mallick R., 2009, "A laboratory study of the reduction of heat island effect of asphalt pavements", *Asphalt Pavement Technologists*, Vol. 78

Ming Chen, Prabir K. Patra, Michael L. Lovett, David L. Kaplan and **Sankha Bhowmick,** 2009 "Kinetics of Cell Adhesion and Actin Cytoskeleton Organization on Different Geometry Electrospun Nanofibrous Scaffolds" , *Journal of Tissue Engineering and Regenerative Medicine* Vol. 3, pp. 269-279.

Sitaula R, Elmoazzen H, Toner M. and **Bhowmick S**, 2009, "Study of the effect of Intracellular Sugars and the supplemental role of Catalase and Desferal in Bovine Sperm Desiccation," *Cryobiology***,** Vol**.** 58(3):322-330

He, X., **Bhowmick, S.** and Bischof, J. 2009, "Hyperthermic injury in urologic disease systems: Analyses using the Arrhenius and the thermal isoeffective dose (TID) model., *ASME Journal of Biomechanical Engineering*, Vol. 131(7) 074507. doi:10.1115/1.3128671

Chen M, Michaud H and **Bhowmick S.** , 2009, Controlled vacuum seeding as a means of generating uniform cellular distribution in electrospun polycaprolactone (PCL) scaffolds, *ASME*

Journal of Biomechanical Engineering, Vol. 131; 074521-8

Mallick, RB, Chen, B and **Bhowmick S.**, (2009), Harvesting energy from asphalt pavements and reducing the heat island effect," *International Journal of Sustainable Engineering,* Vol. 2-3, 214-228.

Chen , B, **Bhowmick, S** and Mallick, R, (2009), "A laboratory study on reduction of heat island effect of pavements," Accepted for publication in the Journal of *Association of Asphalt Paving Technologies*.

Reis J., Sitaula R., **Bhowmick S**, (2009) Water Activity and Glass Transition Temperatures of Disaccharide Based Buffers for Desiccation Preservation of Biologics, "*Journal of Biomedical Science and Engineering*".Vol 2 (8); 594-605

Sitaula R., Guo M., **Bhowmick S**. (2009) Developing Predictive Tool for ROS Damage during Bovine Sperm Storage at Ambient Temperature "*Biopreservation and Biobanking*". 7: 1-12

Sitaula R, Toner M, Fowler, A and **Bhowmick S.**(2010) A study of the Effect of Sorbitol on Osmotic Tolerance during Partial Desiccation of Bovine Sperm. *Cryobiology* Volume 60, Issue 3, June 2010, Pages 331-336 doi:10.1016/j.cryobiol.2010.03.004

Mallick RB, Carelli, J, Albano L, **Bhowmick, S** and Veeraraghavan A, (2011) Evaluation of the potential for harvesting heat energy from asphalt pavements, *International Journal of Sustainable Engineering,* Vol. 4-2, 164-171.

Mallick RB, Chen B and **Bhowmick S**. (2011) Harvesting heat energy from asphalt pavements: development of and comparison between numerical models and experiment. *International Journal of Sustainable Engineering,* Accepted March 2011.

Regis S, Jassal M, Mukherjee N, Bayon Y, Scarborough N, **Bhowmick S.** (2012). Altering surface characteristics of polypropylene mesh via sodium hydroxide treatment. *J Biomed Mater Res Part A* 2012:100A:1160–1167.

Bhowmick S, Medas M, and Mallick RB, (2012). Role of conductive spreader layer in reducing surface temperature of HMA pavements *International Journal of Sustainable Engineering*

Yeesock Kim, Rajib Mallick, **Sankha Bhowmick**, Bao-Liang Chen, (2013) "Nonlinear system identification of large-scale smart pavement systems," *Expert Systems with application,* http://dx.doi.org/10.1016/j.eswa.2012.12.062

Manisha Jassal, Sukalyan Sengupta, Steven B Warner, and **Sankha Bhowmick** (2013), Quantitative characterization of functionally modified micron–submicron fibers for tissue regeneration: a review *Textile Research Journal*, Volume 83 Issue 19 November 2013 pp. 17 - 40.

Regis S, Youssefian S, Jassal M, Phaneuf MD, Rahbar N, **Bhowmick S.** (2013). Fibronectin adsorption on functionalized electrospun polycaprolactone scaffolds: Experimental and

molecular dynamics studies. *J Biomed Mater Res Part A* 2013:00A: 000–000. DOI: 10.1002/jbm.a.34843 [Epub ahead of print]

Sitaula R, Jimenez J and **Bhowmick S** (2013). Osmotic damage as a predictor of motility loss during convective desiccation of bovine sperm, *Biopreservation and Biobanking*. 11(6): 371-378.

Regis S, Youssefian S, Jassal M, Phaneuf M, Rahbar N, **Bhowmick S.** (2013) Integrin α5β1-mediated attachment of NIH/3T3 fibroblasts to fibronectin adsorbed onto electrospun polymer scaffolds. *Polymer Engineering and Science* 54:2587–2594,

Rajib B Mallick, Bao Liang Chen, A Veerragahavan, GL Shivkumar Babu and **Sankha Bhowmick**, (2014) Reduction of Pavement High Temperature with the Use of Thermal Insulation Layer and High Reflectivity Surface. *International Journal of Pavement Research and Technology* Volume 7 (2).

Jassal M., **Bhowmick S**., Sengupta S., Patra P.K., and Walker, D.I(2014) Hydrolyzed Poly(acrylonitrile) Electrospun Ion Exchange Fibers. *Environmental Engineering and Science.* 31(6): 288-299

Wanasekara ND, Ghosh S, Chen M, Chalivendra VB, **Bhowmick S.** (2014). Effect of stiffness of micron/sub-micron electrospun fibers in cell seeding. *J Biomed Mater Res Part A* 2014:00A:000–000.

Nguyen VT, **Bhowmick S,** Amado F and Mallick RB (2015) A pipe-spreader network model for reduction of rutting by lowering the surface temperature in three Brazilian Metropolis Region (*accepted to International Journal of Pavements)*

Jassal M, Sengupta S and **Bhowmick S,** (2015) Functionalization of electrospun poly(caprolactone) fibers for pH-controlled delivery of doxorubicin hydrochloride,, *Journal of Biomaterials Science, Polymer Edition,* 26:18, 1425-1438, DOI: 10.1080/09205063.2015.1100495

Jassal M, Boominathan VP, Ferreira T, Sengupta S and **Bhowmick S**, (2016) Engineering the Next Generation of Drug-loaded Functionalized Electrospun Scaffolds for Cancer Treatment. *Journal of Biomaterials Science, Polymer Edition*. 27(13):1380-1395.

Nawaz T, Jassal M, Sengupta S, & **Bhowmick S,** (2017) "Functional group penetration thickness and intraparticle diffusivity of electrospun poly(acrylonitrile) ion-exchange," *Colloid and Polymer Science*, Volume 295, Issue 10, pp 2069–2075.

Kershaw T. C., **Bhowmick, S.,** Seepersed C. C Holtta Otto K, , 2018, A Decision Tree Based Methodology for Evaluating Creativity in Engineering Design, *Frontiers in Psychology (invited paper- in submission)*

SELECTED PEER REVIEWED CONFERENCE PROCEEDINGS

Bhowmick, S., Branchi, C., Mcassey, Jr., E.V., and Gollin, M., 1996, " Heat transfer performance of engine coolants under sub-cooled boiling conditions," *ASME ICE*- Vol. 26- 2, pp. 53-59.

Bhowmick, S., Swanlund, D. J., and Bischof, J. C., 1998, **"**Supraphysiological thermal injury in Dunning AT-1 prostate tumor cells," *HTD-Vol. 362/BED-Vol. 40, Adv in Heat and Mass Transfer in Biotechnology*, pp 77-78.

Bhowmick, S., Pedersen, J., and Bischof, J. C., 2000, "Investigation of Corneal/Scleral burning during cataract surgery," HTD-Vol. 368/BED-Vol. 47, *Adv. in Heat and Mass Transfer in Biotechnology*, pp. 73-74.

Bhowmick, S. and Bischof, J. C., 2000, "Source terms in thermal therapy: A parametric study," *ASME HTD-368/BED-47, Adv. in Heat and Mass Transfer in Biotechnology*, pp 161-168.

Bhowmick, S., Bhowmick, P., Coad, J. E. and Bischof, J. C., 2001, " *In vitro* assessment of thermal therapy in Human BPH Tissue," *Proceedings of IMECE 2001, New York*, NY

Bhowmick, S., Nath, B. D., Biggers, J. D., and Toner, M., 2002, " Thermostability studies of desiccated murine spermatozoa nuclear DNA to predict the beneficial effect of trehalose in long term storage," *Proceedings of IMECE 2002, New Orleans*, LA.

Zhao, Z., Cusick, J., Fowler, A., **Bhowmick, S.,** and Toner, M, 2003, " Optimization And Storage Of Micro-Fabricated Skin Substitutes," *ASME Summer Bioengineering Conference, Miami*, FL.

Wang, W., **Bhowmick, S.,** Ellis, D., Warner, S., and Fowler, A., 2003, "Loading of Genetically Engineered Bacteria into Hollow Milkweed Fibers," *ASME Summer Bioengineering Conference, Miami*, FL.

Green, J., Fowler, A., Toner, M. and **Bhowmick, S.**, 2004, "A study of enthalpic relaxation of trehalose-water glasses," *Proceedings of IMECE 2004, Anaheim, CA.*

Chen, B. and **Bhowmick, S.**, 2004, "Modeling of convective drying of trehalose-water glasses," *Proceedings of IMECE 2004, Anaheim*, CA.

Chen, M., Patra, P., Warner, S., and **Bhowmick, S**., 2005, "Development of a biodegradable nanofiber scaffold by optimization of electrospinning process parameters," *ASME Summer Bioengineering Meeting , Vail*, CO.

Sitaula, R., and **Bhowmick, S**., 2005, "A study of the thermophysical and moisture sorption properties of trehalose glasses," *ASME Summer Bioengineering Meeting , Vail*, CO.

Borgaonkar, P., Sharma, S., Schmidt, DF, Chen M., Bhowmick S, 2007, " Preparation and characterization of polyester thermoset xerogels for tissue engineering scaffolds," *Society*

of Plastics Engineers Annual Technical Conference

Mallick, R, **Bhowmick S** and Hulen M, 2008, "Capturing Solar Energy from Asphalt Pavements. International Symposium on Asphalt Pavements and Environment," *Proceedings of International Society for Asphalt Pavements Symposium on Asphalt Pavements and Environment*, 18th-20th August, 2008, Zurich, Switzerland.

Mallick, R, Chen, B, and **Bhowmick, S,** 2009, "Reduction of Urban Heat Island Effect through harvest of heat energy from Asphalt Pavements," Accepted for presentation and publication in *Proceedings of 2nd International Conference on Countermeasures to Urban Heat Island Effect, Berkeley*, CA, Sept. 2009.

Chen M, Chopra M and **Bhowmick S** (2009) The use of Electrospun Polycaprolactone as a Dermal Scaffold for Skin Tissue Engineering, *MRS Fall Meeting, Boston, MA.*

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