

JOHN CHRISTOPHER BISCHOF

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EDUCATION:

Ph.D. University of California at Berkeley. Department of Mechanical Engineering. May 1992

M.S. University of California at Berkeley and San Francisco, Bioengineering Joint Campus Program
June 1989

B.S. University of California at Berkeley. Degree in Bioengineering; Minor in German. May 1987

APPOINTMENTS

9/02 - present Professor, Mechanical Engineering Department, University of Minnesota.

9/98 – 9/02 Associate Professor, Mechanical Engineering Department, University of Minnesota.

9/93 - 9/98. Assistant Professor, Mechanical Engineering Department, University of Minnesota.

9/95 - present. Graduate Faculty in Biomedical Engineering. University of Minnesota.

9/98 - present Joint Appointment, Biomedical Engineering Department. University of Minnesota.

9/97 - present Joint Appointment, Department of Urologic Surgery. University of Minnesota.

PUBLICATIONS (Selected recent of over 100 peer reviewed publications)

Jiang, J., Goel, R., Belcher, J., Vercellotti, G., **Bischof, J.C.** Mechanisms of TNF enhancement of cryosurgical (Freezing) injury in vivo and in vitro: a comparison. *Molecular Cancer Therapeutics*, 7(8): 2547-55 (2008).

Choi, J.W. and **Bischof, J.C.** A quantitative analysis of the thermal properties of porcine liver with glycerol at subzero and cryogenic temperatures. *Cryobiology* 57(2) 79-83 (2008).

Shah, N., Wolkers, W., Sun, W., and **Bischof, J.C.** Effect of gamma irradiation on protein structure and stability in Alloderm skin tissue matrix. *Tissue Engineering* 15(1): 33-40 (2009).

Aksan, A., Hubel, A., **Bischof, J.C.** The role of water at multiple scales in biotransport. *Journal of the Japan Society of Mechanical Engineers*, 111(1076): 1 – 4, 2008.

Harikrishnan, G., Macosko, C.,W. Choi, J.W., and Bischof, J.C. A simple transient method for measurement of thermal conductivity of rigid polyurethane foams. *J. of Cellular Plastics* 44(6): 481-491 (2008).

He, X., Bhowmick, S, and Bischof, J.C.. Thermal therapy in urologic systems: a comparison of Arrhenius and thermal isoeffective dose (TID) models in predicting hyperthermic injury (e-pub: Volume 131, Issue 7, 074507 doi:10.1115/1.3128671) *J. Biomechanical Engineering* 2009.

Balasubramanian, S.K, Wolkers, W., **Bischof, J.C.** Quantification of molecular phase and structure during cell freezing: correlation of macromolecular hydration with cellular biophysics and injury 1788(5): 945-953 *BBA* 2009.

Goel, R., Anderson, K., Slaton, J., Schmidlin, F., Vercellotti, G., Belcher, J., Bischof, J.C. Adjuvant approaches to enhance cryosurgery. (e-pub) *J. Biomechanical Engineering* 2009.

Goel, R., Shah, N., Visaria, R.V., Paciotti, G., Bischof, J.C. Biodistribution of CYT-6091, a gold nanoparticle delivery system for TNF-alpha. *Nanomedicine* 4(4): 401-410 (2009).

Hagiwara, J., Wolkers, W.F., Choi, J.W., Roberts, K.R., Devireddy, R.V., Makhlof, A., **Bischof, J.C.** Cellular and macromolecular biophysics during freezing of rodent (mouse and rat) sperm. *Biology of Reproduction* 2009 (e-pub).

Dong, J., Hubel, A., Bischof, J.C., Aksan, A. Freezing-induced phase separation and spatial microheterogeneity in protein solutions. *J. of Physical Chemistry B*, 113, 30, 10081–10087.

Aksan, A., Hubel, A., **Bischof, J.C.** Frontiers in biotransport: hydration and water transport. (e-pub) *J. Biomechanical Engineering* 2009.

Patents:

- Thermally Insulating Surgical Probe. **US Patent #5720743** J.C. Bischof, N. Merry, J.H. Hulbert.
- Enhancement of Cell and Tissue Destruction in Cryosurgery. **U.S. Patent** Publication #0122588
B. Han and J.C. Bischof. (Allowed October, 2007)
- Thermal-Surgical Procedures and Compositions. **US Patent** Publication #0079869
J.C. Bischof, J. Belcher, G. Vercellotti (Allowed October, 2007)

SYNERGISTIC ACTIVITIES

Appointments and Service

1998 - 2000	Board of Governors of the Society of Cryobiology
1999 - 2001	Board American College of Cryosurgeons
2005	Board of the International Society of Cryosurgeons
2000 - 2004	Editorial Board Cryo-Letters
2001 - Present	Editorial Board Cryobiology
1998 - 2001	Co-Chair ASME K-17 Committee (Heat and Mass Transfer in Biotechnology)
2001 - 2004	Chair of ASME K-17 Committee (Heat and Mass Transfer in Biotechnology)
2000 - 2002	Secretary of Society of Cryobiology
2002 - present	President Elect, President (2004) and Past-President (2006) of Society of Cryobiology
2005	Co-Chair (w/ Dr. Hubel) 42nd Annual Meeting of the Society for Cryobiology
2005	U.S. Scientific Committee - 13 th International Heat Transfer Conference 2006
2005	5 th World Congress of Biomechanics (Bioheat Transfer Track - Session organizer).
2007 - 2009	ASME BED Executive Committee (Technical Affairs)
2009	Secretary Elect - Bioengineering Division of ASME
2009	EMBC 09 - Local organizing committee, theme chair, and mini-symposium organizer.

Awards / Recognition

1991	American College of Cryosurgery - Outstanding Research Award.
1992 - 1993	John F. Burke Postdoctoral Fellowship in Biomedical Science and Engineering, Harvard.
1993 - 1997	Richard & Barbara Nelson Assist. Professor of Mechanical Engineering, Univ. of Minnesota.
1997 - 1999	McKnight Endowed Assistant Professor, Univ. of Minnesota.
1994	NSF - Research Initiation Award
1995	Whitaker Young Investigator Award
1997	NSF Career Award
1998	NIH First Award
1997	Best Paper Award - ASME J. of Biomechanical Engineering
2002	Best Paper Award - ASME Heat Transfer Division
2004	George Taylor Research Award - University of Minnesota
2004 - 2005	Alexander von Humboldt Fellow
2005	Japan Society for the Promotion of Science Fellow
2006	Elected Fellow AIMBE
2006	Distinguished McKnight University Professor (U of MN)
2007	Elected Fellow ASME
2009	Committee on Institutional Cooperation (CIC) - Academic Leadership Program (ALP)

Professional Societies

1992 - present	American Society of Mechanical Engineers (ASME)
1992 - present	The Society of Cryobiology
1985 - present	Tau Beta Pi Engineering Honor Society
1994 - present	ASME K17 - Bio Heat and Mass Transfer Committee
2006- present	The Society for Thermal Medicine
2007 - present	Biomedical Engineering Society (BMES)

Collaborators:

- Drs. Greg Vercellotti, John Belcher and Stephen Schmechel
Pre-inflammation (pre-incubation) effects of TNF-alpha on
Prostate cancer cryosurgery.
- Drs. Al Aksan and Allison Hubel
Biopreservation of Cells and Tissue Engineered Equivalents
Mechanical Engineering, University of Minnesota
- Drs. Joel Slaton, Kyle Anderson, Greg Metzger, Paul Iaizzo
Urologic Applications of Cryosurgery and Thermal Therapies.
Department of Urologic Surgery
- Drs. Erik Cressman and Nahum Goldberg
Translational Thermal Therapy of Liver Cancer
Department of Radiology
University of Minnesota and Harvard Medical School (Boston)

Students (includes current):

8 Post-Doctoral Fellows, 14 PhD, 19 M.S., 3 Medical Students, 2 Exchange students (MS) from Germany, 40 Undergraduates. 5 previous students currently hold faculty positions*
(*Purdue, LSU, U. South Carolina, U. Hannover Germany, U. Mass. Dartmouth,)