

XUANHONG CHENG, Ph. D.

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EDUCATION AND PROFESSIONAL EXPERIENCE

- 2008- Assistant professor
Materials Science and Engineering/ Bioengineering, Lehigh University
- 2005-2007 Postdoctoral fellow
Massachusetts General Hospital and Harvard Medical School
- 1999-2004 Doctor of Philosophy: Biomedical Engineering
University of Washington, Seattle, WA
- 2001-2004 Master of Engineering: Electrical Engineering
University of Washington, Seattle, WA
- 1994-1998 Bachelor of Science: Biology
Wuhan University, Wuhan, China

MAJOR RESEARCH INTEREST

BioMEMS, Biomaterials, Nanotechnology and Surface Sciences
Point-of-care diagnostics; cell interaction with environments; sensitive detection of cell responses.

AWARDS AND HONORS

- Poster of Distinction Travel Award, Massachusetts General Hospital Scientific Advisory Board, 2007
- Society For Biomaterials 2004 Student Award for Outstanding Research (Ph.D. category), 7th World Biomaterials Congress, Sydney Australia, 2004
- Outstanding Graduate Female of Society of Women Engineers, University of Washington, Seattle WA, 2004
- Honorable Mention, Society for Biomaterials 29th Annual Meeting, Reno NV, 2003
- Honorable Mention, Society for Biomaterials 28th Annual Meeting, Tampa FL, 2002
- Renmin Fellowship, Wuhan University, Wuhan China, 1995 – 1998

PROFESSIONAL MEMBERSHIPS

Biomedical Engineering Society (BMES)
American Chemical Society (ACS)
Society for Biomaterials (SFB)
American Vacuum Society (AVS)

PUBLICATIONS

Meiling Li, Ganga Fernando, Lorraine G. van Waasbergen, **Xuanhong Cheng**, Buddy D. Ratner, and Gary R. Kinsel, "Thermoresponsive MALDI Probe Surfaces as a Tool for Protein On-Probe Purification," *Analytical Chemistry*, DOI: [10.1021/ac0711236](https://doi.org/10.1021/ac0711236)

Xuanhong Cheng, Daniel Irimia, Meredith Dixon, Joshua C. Ziperstein, Utkan Demirci, Lee Zamir, Ronald G. Tompkins, Mehmet Toner, William Rodriguez, "[A Microchip Approach for Practical Label-free CD4+ T Cell Counting of HIV-infected Subjects in Resource-Poor Settings](#)," *Journal of AIDS*, 45, 257-261(2007). **(Featured by MIT Tech Review)**

Xuanhong Cheng, Yi-shao Liu, Daniel Irimia, Utkan Demirci, Liju Yang, Lee Zamir, William R. Rodríguez, Mehmet Toner and Rashid Bashir, "[Cell Detection and Counting through Cell Lysate Impedance Spectroscopy in Microfluidic Devices](#)," *Lab on a Chip*, 7, 746-755(2007).

Xuanhong Cheng, Daniel Irimia, Meredith Dixon, Kazuhiko Sekine, Utkan Demirci, Lee Zamir, Ronald G. Tompkins, William Rodriguez, Mehmet Toner, "Practical Label-free CD4+ T Cell Counting of HIV-infected Subjects: a Microchip Approach," *Lab on a Chip*, 7, 170-178(2006). **(Featured by Lab on a Chip)**

Murat Tunc, **Xuanhong Cheng**, Buddy D. Ratner, Ellis Meng and Mark Humayun, "Reversible Thermosensitive Glue for Retinal Implants," *Retina*, November 2006 (accepted).

Heather E. Canavan, Dan J. Graham, **Xuanhong Cheng**, Buddy D. Ratner and David G. Castner, "[Comparison of Native Extracellular Matrix with Adsorbed Protein Films Using Mass Spectrometry](#)," *Langmuir*, 23, 50-56(2007). **(Cover Image of Langmuir)**

Heather E. Canavan, **Xuanhong Cheng**, Dan J. Graham, Buddy D. Ratner and David G. Castner, "[A Plasma-Deposited Surface for Cell Sheet Engineering: Advantages over Mechanical Dissociation of Cells](#)," *Plasma Processes and Polymers*, 3, 516-523(2006).

Xuanhong Cheng, Heather E. Canavan, Dan J. Graham, David G. Castner and Buddy D. Ratner, "[Protein Interaction with Thermoresponsive Surfaces by Plasma Deposition](#)," *BiointerPhases*, 1, 61-72(2006).

Xuanhong Cheng, Heather E. Canavan, M. Jeanette. Wenzel, James R. Hull, Matthew S. Wagner, Sasha J. Kveskin, Rosnita A. Talib, Sally L. McArthur, Gabor A. Somorjai, David G. Castner, Buddy D. Ratner "[Characterization of the Surface Chemical and Mechanical Properties of Plasma Polymerized N-isopropylacrylamide](#)," *Langmuir*, 21, 7833-7841(2005).

Heather E. Canavan, **Xuanhong Cheng**, Dan J. Graham, Buddy D. Ratner and David G. Castner, "[Cell Sheet Detachment Affects the Extracellular Matrix: A Surface Science Study Comparing Thermal Lift-off, Enzymatic and Mechanical Methods](#)," *Journal of Biomedical Materials Research Part A*, 75A, 1-13 (2005).

Heather E. Canavan, **Xuanhong Cheng**, Dan J. Graham, Buddy D. Ratner and David G. Castner, "[Surface Characterization of the Extracellular Matrix upon Cell Detachment from a Thermoresponsive Polymer](#)," *Langmuir*, 21, 1949-1955 (2005). **(Cover Image of Langmuir)**

Xuanhong Cheng, Yanbing Wang, Yael Hanein, Karl F. Böhringer and Buddy D. Ratner, "[Novel Cell Patterning Using Thermo-responsive Surface Chemistry](#)," *Journal of Biomedical Materials Research Part A*, 70A, 159-168 (2004). **(SFB Student Award)**

PATENT APPLICATIONS

Murat Tunc, **Xuanhong Cheng**, Buddy D. Ratner, Ellis Meng and Mark Humayun, "[Reversible Attachment of Retinal Implants, Other Implants and Drug Delivery Devices](#)," invention disclosure filed, UW Ref#7576D, Aug. 16, 2006.

Mehmet Toner, William Rodriguez, **Xuanhong Cheng**, Daniel Irimia, Meredith Dixon, Kazuhiko Sekine, Utkan Demirci, Lee Zamir, Ronald G. Tompkins, "[A Microfluidic Chip for CD4+ T Cell Count Based on Flow Assisted Cell Affinity Isolation](#)," invention disclosure filed, Mar. 14, 2006.

Buddy D. Ratner, **Xuanhong Cheng**, Yanbing Wang, Yael Hanein, Ashutosh Shastry and Karl F. Böhringer, "Apparatus and Methods for Binding Molecules and Cells," filed, OTL Ref. No.'s 2061-3773-4435PT (U.S.) & 2061-3773-4437PT (PCI), Jul. 30, 2003.

CONFERENCE PRESENTATIONS AND ABSTRACTS

Xuanhong Cheng, Daniel Irimia, Meredith Dixon, Kazuhiko Sekine, Utkan Demirci, Lee Zamir, Ronald G. Tompkins, William Rodriguez, Mehmet Toner, "A Microfluidic Device for Practical Label-Free CD4+ T Cell Counting of HIV-Infected Subjects," MicroTAS2006, Tokyo, Japan, November 5-9, 2006.

Xuanhong Cheng, Daniel Irimia, Meredith Dixon, Kazuhiko Sekine, Utkan Demirci, Lee Zamir, Ronald G. Tompkins, William Rodriguez, Mehmet Toner, "Label-Free CD4+ T Cell Counting for Management of HIV-Infected Subjects in Resource Poor Settings," Biomedical Engineering Society Annual Fall Meeting, Chicago, IL, October 11-14, 2006.

Buddy D. Ratner, **Xuanhong Cheng**, Yanbing Wang, Yael Hanein and Karl F. Böhringer, "Thermally responsive surfaces for cell and protein technology by RF-plasma deposition," *Abstracts of Papers of the American Chemical Society*, **227**: U891-U891, 2004.

Xuanhong Cheng, Yanbing Wang, Yael Hanein, Karl Böhringer and Buddy D. Ratner, "Proteins on Plasma Deposited Thermo-Responsive Polymer: Adsorption and Activity Study," 7th World Biomaterials Congress, Sydney, Australia, May 17-21, 2004.

Buddy D. Ratner, **Xuanhong Cheng**, Yanbing Wang, Yael Hanein and Karl F. Böhringer, "Temperature-responsive polymeric surface modifications by plasma polymerization: Cell and protein interactions," *Abstracts of Papers of the American Chemical Society*, **225**, U582-U582, 2003.

Heather E. Canavan, **Xuanhong Cheng**, Buddy D. Ratner and David G. Castner, "The Use of XPS, SIMS, and Immunostaining to Examine the Behavior of Extracellular Matrix upon Cell Detachment from a "Smart Polymer," 50th International Symposium of the American Vacuum Society, Baltimore, MD, November 2-7, 2003.

Yanbing Wang, **Xuanhong Cheng**, Yael Hanein, Ashutosh Shastry, Denice D. Denton, Buddy D. Ratner, Karl F. Böhringer, "Selective Attachment of Multiple Cell Types on Thermally Responsive Polymer," 12th International Conference on Solid-State Sensors and Actuators (Transducers'03), Boston, MA, June 6-12, 2003.

Xuanhong Cheng, Yanbing Wang, Yael Hanein, Karl Bohringer and Buddy D. Ratner, "Cell Behavior and Patterning on Plasma Polymerization Thermal Responsive Coatings," Society for Biomaterials 29th Annual Meeting, Reno, NV, April 30-May 4, 2003.

Buddy D. Ratner, **Xuanhong Cheng**, Yanbing Wang, Yael Hanein and Karl F. Böhringer, "Temperature-Responsive Polymeric Surface Modifications by Plasma Polymerization: Cell and Protein Interactions," 225th American Chemical Society National Meeting, New Orleans, LA, March 23-27, 2003.

Xuanhong Cheng, Yanbing Wang, Yael Hanein, Karl Bohringer and Buddy D. Ratner, "Temperature-Responsive Polymer Coatings by Plasma Polymerization and the Applications for Protein and Cell Patterning," American Vacuum Society 49th International Symposium, Denver, CO, November 4-8, 2002.

Xuanhong Cheng, Yanbing Wang, Yael Hanein, Karl Bohringer and Buddy D. Ratner, "Synthesis of Temperature-Responsive Polymer Coatings by Plasma Polymerization and the Protein Adsorption Properties," Society for Biomaterials 28th Annual Meeting, Tampa, FL, April 24-27, 2002.

INVITED PRESENTATIONS

Buddy D. Ratner, **Xuanhong Cheng**, Yanbing Wang, Yael Hanein, Karl Bohringer, "Thermally Responsive Surfaces for Cell and Protein Technology by RF-Plasma Deposition," 227th American Chemical Society National Meeting and Exhibition, Anaheim, CA, March 27-April 1, 2004.

Xuanhong Cheng, Yanbing Wang, Karl Bohringer and Buddy D. Ratner, "Plasma Polymerized Thermoresponsive pNIPAM Coatings: Characterizations and Applications," Institute of Materials Research and Engineering Student Workshop, Singapore, February 13-14, 2004.