

## Thomas Boland, PhD

Professor, Metallurgical and Materials Engineering,  
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Undergraduate Institution(s)	Major	Degree & Year
Ecole Nationale Supérieure d'Ingénieurs de Genie Chimique	Chem E	B.S. 1990
Graduate Institution(s)	Major	Degree & Year
University of Washington	Chem E	PhD. 1995
Postdoctoral Institution(s)	Area	Inclusive Dates (years)
Pennsylvania State University	MS&E	Fellowship 1995-1998

### Appointments

2009-present Professor, Metallurgy & Materials Eng., University of Texas at El Paso  
2009-present Director, Biomedical Engineering Program, University of Texas at El Paso  
2005-2009 Associate Professor of Bioengineering Clemson University  
2005-2009 Associate Professor of Graduate Studies Medical University of SC  
2003-2005 Assistant Professor of Graduate Studies Medical University of South Carolina  
1999-2005 Assistant Professor of Bioengineering Clemson University  
1997-1998 Postdoctoral Associate Naval Research Laboratory  
1995-1997 Postdoctoral Scholar Pennsylvania State University  
1990-1995 Research Assistant, Teaching Assistant University of Washington

### Publications Related To Proposed Project out of >55 Boland,

Cui, X., Boland, T. "Human microvasculature fabrication using thermal inkjet printing technology." *Biomaterials*. 2009. **30**(31), 6221-6227.

Xu, T., Baicu, C., Aho, M., Zile, M., Boland, T. "Fabrication and characterization of bio-engineered cardiac pseudo tissues." *Biofabrication*. 2009. **1**(3), 1-6.

Xu, T., Molnar, P., Gregory, C., Das, M., Boland, T., Hickman, J.J. "Electrophysiological characterization of embryonic hippocampal neurons cultured in a 3D collagen hydrogel" *Biomaterials*. 2009. **30**(26), 4377-4383.

Zhang, C., Zhao, K., Hu, T., Cui, X., Brown, N., Boland, T. "Loading dependent swelling and release properties of novel biodegradable, elastic and environmental stimuli-sensitive polyurethanes." *J Control Release*. 2008. **131**(2), 128-136.

Zhang, C., Wen, X., Vyavahare, N.R., Boland, T. "Synthesis and characterization of biodegradable elastomeric polyurethane scaffolds fabricated by the inkjet technique." *Biomaterials*. 2008. **29**(28):3781-3791.

Boland, T. Xu, T., Damon, B., Cui, X.: "Application of Inkjet Printing to Tissue Engineering" *Biotechnology J.*, 2006. **1**(9), 910-917.

Xu, T. Xu, T. Gregory, C., Molnar, P., Cui, C., Jalota, S., Bhaduri, S. B., Boland, T. "Viability and Electrophysiology of Neural Cell Structures generated by the Inkjet Printing Method" *Biomaterials*. 2006. **27**(19), 3580-3588.

Varghese, D., M. Deshpande, M., Xu, T., Kesari, P., Ohri, S., T. Boland "Advances in Tissue Engineering: Cell Printing" *J. Thoracic and Cardiovascular Surgery*. 2005. **129** (2), 470-472.

Xu, T., Jin, J., Gregory, C., Hickman, J. J., Boland, T.; "Inkjet printing of viable mammalian cells." *Biomaterials*. 2005. **26**, 93-99.

Dhariwala, B., Hunt, E., Boland, T. "Tissue-Engineering Constructs, Using Photopolymerizable Hydrogels and Stereolithography." *Tissue Engineering*. 2004, **10**, 1316-1322.

Roth, E. A., Xu, T., Das, M., Gregory, C., Hickman, J. J., Boland, T. "Inkjet Printing for High Throughput Cell Patterning." *Biomaterials*. 2004. **25**, 3707-3715.

Xu, X., Petridou, S., Lee, E. H., Roth, E. A., Vyavahare, N. R., Hickman, J. J., Boland, T. "Construction of High- Density Bacterial Colony Arrays and Patterns by the Ink Jet Method." *Biotechnol. Bioeng.* 2004. **85**(1), 29-33.

Wilson, C., Boland, T: "Cell and Organ Printing 1: Protein and Cell Printers." 2003. *Anat. Rec.* **272A**, 491-496.

T. Boland, V. Mironov, A. Gutowska, E. A. Roth, R. R. Markwald: "Cell And Organ Printing 2: Fusion of Cell Aggregates In Three-Dimensional Gels" *Anat. Rec.* **272A**, 497 –502 (2003)

Mironov, V., Boland, T., Trusk, T., Forgacs, G., Markwald, R. R. "Organ printing: computer aided jet based 3D tissue engineering" *Trends Biotechnol.* **21**, 157-161 (2003).

Pardo, L. F., Boland, T. "Characterization of Patterned Self-Assembled Monolayers and Protein Arrays Generated by the Ink-Jet Method." *Langmuir*, 2003. **19**, 1462-1466.

Pardo, L. F., Boland, T. "A Quantitative Approach to Studying Structures and Orientation at Self- Assembled Monolayer/Fluid Interfaces" *J. Coll. Interf. Sci.*, **257**(1), 116-120, (2003)

### **Synergistic Activities**

PI of the NSF/NIH funded BBSI student training program

Has disseminated research findings through the publication of >56 journal articles and 78 conference papers/presentations. Has been extensively involved with service outside of his institution, having served on an NSF site visit panels:

Site Visit Panel, National Nanotechnology Infrastructure Network, 2004, Georgia Tech Reverse Site Visit Panel, National Nanotechnology Infrastructure Network, 2003, NSF Proposal Review Panel, Technology for a Sustainable Environment, 2003, NSF Site Visit Panel, Science and Technology Centers, 2003, Cornell University Proposal Review Panel

Reviewer for

Journal of the American Chemical Society, Nature Biotechnology, Nature Materials Circulation, Langmuir, Macromolecules, Journal of Physical Chemistry, Journal of Neuroscience Methods, Journal of Inorganic Biochemistry, J. Biomed. Mat. Res., Biomaterials,.

Editor, Biofabrication

Speaks fluently German, French, English, conversational in Mandarin

### **Collaborators & Other Affiliations**

Collaborators and co-editors:

Baicu, Catalin, Medical University of South Carolina  
Burg, Karen, Clemson University  
Forgacs, Gabor, University of Missouri  
Hickman, James, J. University of Central Florida  
Markwald, Roger, Medical University of South Carolina  
Mironov, Vladimir, Medical University of South Carolina  
Molnar, Peter, University of Central Florida  
Ohri, Sunil Kumar, Wessex Cardiothoracic Centre  
Varghese, David, Southampton General Hospital  
Vyavahare, Naren, Clemson University  
Zile, Michael, Medical University of South Carolina

Graduate and Postdoctoral Advisors

Ratner, Buddy, University of Washington  
Allara, David, Pennsylvania State University  
Lee, Gil U, University College, Dublin, Ireland

Thesis Advisor and Postgraduate-Scholar Sponsor out of 15

Xu, Tao, University of Texas at El Paso  
Zhang, Changhong, University of Southern California  
Cui, Xiaofeng, University of California at San Diego