

GREGORY P. CRAWFORD

Dean, College of Science
 Professor of Physics
University of Notre Dame
 Notre Dame, Indiana 46556

Born: March 11, 1965
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Education

Ph.D., Chemical Physics, Kent State University, 1991
 M.A., Physics, Kent State University, 1988
 B.S., Mathematics and Physics, Kent State University, 1987

Experience

Dean, College of Science, University Notre Dame, 2008-present
 Professor of Physics, University of Notre Dame, 2008-present
 Dean of Engineering, Brown University, 2006-2008
 Professor of Engineering and Physics, Brown University, 2006-2008
 Associate Professor of Engineering and Physics, Brown University, 2001-2006
 Visiting Sabbatical Professor, *Technical University of Eindhoven*, 2003-2004
 Richard and Edna Salomon Assistant Professor, Brown University, 1999-2001
 Visiting Professor, Philips Research Labs (NATLAB), The Netherlands, 1999
 Assistant Professor of Engineering, Brown University, 1996-2001
 Part-time Evening Instructor, San Jose State University, Winter, 1996
 Member of Research Staff, Xerox Palo Alto Research Center, 1994-1996
 NRC Postdoctoral Fellow, National Research Council, Washington D.C., 1993-94
 Postdoctoral Fellow, NSF ALCOM Center, 1992-1993

Awards and Achievements and Professional Record

2008	Science Technology Advisory Council Award, State of Rhode Island
2006	Citation, Lieutenant Governor, Non-Invasive Hemoglobin Project
2005	Fellow, Society for Information Display
2004-present	Associate Editor, Journal Society of Information Display (JSID)
2003	Elected Gordon Conference Vice Chair ('05) and Chair ('07) on Liquid Crystals
2003	Gordon Research Conference Outstanding Poster Award on Nanoform Carbons
2002	United State Patent and Trademark Office Citation & Certificate of Appreciation
2001-present	Director, Nuclear Magnetic Resonance Facility, Brown University
2001	Gordon Research Conference Outstanding Poser Award on Aromatic Carbon
2000	Richard and Edna Assistant Professor Chair
2000	ILCC Best Poster Award on Multiplexing Liquid Crystal / Holographic Films
1999	Onyx Appreciation Award for Excellence in Teaching
1999	NSF CAREER Award Recipient
1997	Salomon Faculty Research Award, <i>Brown University</i>
1996	Young Alumni Achievement Award, <i>Kent State University</i>
1995	Alan Berman Research Publication Award, <i>Naval Research Laboratory</i>
1995-1999	Editorial Board, <i>Liquid Crystals</i> , Taylor & Francis Journal for the ILCS
1994	Glenn Brown Award, International Recognition of Thesis on Liquid Crystals

Professional Record:

Authored or co-authored >300 scientific papers, review articles, book chapters, and conference proceedings; co-editor and co-author of 3 books on liquid crystal polymer dispersions; author and co-author on 17 educational publications; inventor and co-inventor on 16 patents issued and 7 pending; delivered >100 presentations at scientific conferences, universities, and industry; delivered >75 educational workshops for K-University students and professional scientists and engineers; member of APS, OSA, IEEE, ILCS, SID, SPIE & MRS; and industrial experience at *XEROX PARC* (1994-1996), *Philips* (summer 1999), and the *Xerox* spin-off *dpiX* (1996). Outreach efforts focused on K-12, minority, challenged, and troubled kids during the past four years. Professional outreach efforts focused on developing short courses and tutorials.

Selected Publications (total >300):

- “A Drug Screening Platform Based on the Contractility of Tissue Engineered Muscle,” *Muscle and Nerve* **37**, 438-447 (2008), H. Vandeburgh, J. Shansky, F. Benesch-Lee, V. Barbata, J. Reid, L. Thorrez, R. Valentini, and G.P. Crawford.
- “Liquid Crystal Materials Find a New order in Biomedical Applications,” *Nature Materials* **6**, 929-938 (2008), S.J. Woltman, G.D. Jay, and G.P. Crawford.
- “Non-Invasive Optical, Electrical, and Acoustic Methods of Hemoglobin Determination,” *Clinical Chemistry* **54**, 264-272 (2008), J.W. McMurdy, G.D. Jay, S. Suner, and G.P. Crawford.
- “Band Structures of Orientational Modes in Quasi-Periodic Mesoscale Liquid Crystal-Polymer Dispersions,” *Physical Review Letters* **98** 173901 (2007), M. Avsec, I. Drevensek-Olenik, A. Mertelj, S.P. Gorkhali, G.P. Crawford, and M. Copic.
- “Electro-Optical Investigations of Holographic Polymer Dispersed Ferroelectric Liquid Crystals,” *Journal of the Optical Society of America A* **24**, 3789-3799 (2007), S.J. Woltman, J.N. Eakin, S. Zumer and G.P. Crawford.

Other Publications:

- “Optical Detection of Anchoring at Free and Fluid Surfaces using a Nematic Liquid Crystal Sensor,” *Applied Physics Letters* **91**, 141916 (2007), M. McCamley, G.P. Crawford, M. Ravnik, S. Zumer, A.W. Aretenstein, and S.M. Opal.
- “Molecular Self Organization in Cylindrical Nanocavities,” *Physical Review E* **75**, 051703 (2006), S.G. Clourier, J.N. Eakin, R.S. Guico, M.E. Sousa, G.P. Crawford, and J. Xu.
- “Switchable Quasi-Crystal Structures with Five, Seven, and Nine Fold Symmetry,” *Journal of the Optical Society of America B* **23**, 149-158 (2006), S.P. Gorkhali, J. Qi, and G.P. Crawford.
- “Isotropic Islands in a Cholesteric Sea: Patterned Thermal Expansion and Responsive Surface Topologies,” *Advanced Materials* **18**, 1842-1845 (2006), M.E. Sousa, D.J. Broer, C.W.M. Bastiaansen, L.B. Freund, and G.P. Crawford.
- “Visualization of the Liquid Crystal Director Field within Carbon Nanotube Cavities,” *Applied Physics Letters* **88**, 163110 (2006), K. Jian, R.H. Hurt, B.W. Shelton, and G.P. Crawford.

Synergistic Activities and Experience Related to Proposal:

Entrepreneurship Education: Initiated an entrepreneurship course at Brown that was funded by *NSF* (EEC-9972938). The course has received a lot of positive press, including Student Entrepreneurship: Greg Crawford shares his thoughts on Entrepreneurship for Students (SPIE Professional, 2006). 'The Incredible Shrinking Transformer' (*George Street Journal*, 4/03), 'Going for a Spin' (*Providence Journal*, 9/26/02), 'Hand in Glove: Young Entrepreneurs at Work' (*Brown Alumni Magazine*, 5/02) 'Course Will End, But Not Work of Engineering Students' (*George St. Journal*, 3/01), Brown 'Students-Business Link Surpasses Internships' (*Providence Business News*, 5/01), 'and Undergraduate Course in Entrepreneurship (Inside DPI, 2/03). Also published in a peer reviewed article in the *Journal of Engineering Education* [4/02], *International Journal of Engineering Education* [1/05], and a feature article in *Optics and Photonics News* [8/04].

Inventions: 16 U.S. patents; Workshop speaker for United States Patent and Trademark Office

Industrial Sponsored Research: Research funding obtained from private industry, including *Xerox*, *Corning*, *Reveo*, *Optron*, *Spectra Science*, *Scientific Solutions*, *Foster-Miller*, *Raytheon*, *Digilens*, *Optiva*, *Radiant Images*, *3M*, *Microtouch*, *Optogone*, *Fuji PhotoFilm*, and *Reveo*.

Technical Advisory Board/Start-Ups: Served on the scientific advisory committee of many start-up companies over the years and the creative deployment of my research has resulted in two start-up companies, *Myomics* and *Corum Medical*.

Ph.D. Advisor: Dr. J. William Doane, Director Emeritus, *Liquid Crystal Institute & NSF ALCOM*

Postdoctoral Fellow Advisor: Dr. R. Shashidhar and B. R. Ratna, *Naval Research Laboratory*

Collaborators: R. Hurt and A. Kane (Brown University); D. Broer (Philips); S. Zumer (Ljubljana)

Ph.D. Students: C.C. Bowley (2000); M.E. Escuti (2002); A.K. Fontecchio (2002); J. Qi (2003); P. Kossyrev (2003); Jose Vedrine (2004); Haiqing Xianyu (2004); Matthew Sousa (2006); S. Gorkhali (2008); J. Eakin (2008); J. McMurdy (2008).

Masters Students: N. Eichenlaub (1998); J. Lin (2000); S. Chmura (2001); G. Berguig (2003); J. Eakin (2004).