

## **Carmen Scholz, Ph.D.**

**Professor of Chemistry**

**Member Executive Editorial Board *Polymer International***

Department of Chemistry, University of Alabama in Huntsville

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### ***Education:***

July, 1987

#### **Diploma (MS) in Polymer Chemistry**

University of Technology, Dresden, Germany

Thesis Subject: "Structure and Dyeing Kinetics of High Wet Modulus Fibers"

November, 1991

#### **Dr. rer.nat. (Ph.D.) in Chemistry**

University of Technology, Dresden, Germany

Thesis Subject: "Dyeing Behavior of High Wet Modulus Fibers"

### ***Research and Professional Experience***

2017-2018 President of the Faculty Senate

2015-2017 Interim Department Chair

2009- Professor, Department of Chemistry, University of Alabama in Huntsville, AL

2004-2009 Associate Professor, Department of Chemistry, Univ. of Alabama in Huntsville

1998-2004 Assistant Professor, Department of Chemistry, Univ. of Alabama in Huntsville

2004/2005 Assistant Department Chair

2000- Adjunct Professor, Department of Chemical Engineering, UAH

2001- Faculty Member of the Biotechnology and Engineering Ph.D. Program, UAH

1999- Faculty Member of the Materials Science Ph.D. Program, UAH

1996-1998 Research Associate, Department of Chemistry, University of Massachusetts, Lowell, MA

1994-1996 Research Scientist, International Center for Biomaterials Science at Science University,

Tokyo, Noda-Campus, Japan

1992-1994 Postdoctoral Research Associate, Department of Polymer Science and Engineering,

University of Massachusetts Amherst, MA

1991-1992 Senior Research Assistant, University of Technology, Dresden, Germany

1987-1991 Research Assistant, University of Technology, Dresden, Germany

### ***Other Professional Experience***

2014 UAH: Search Committee: Dean of Science

2014 Sabbatical: Martin Luther University Halle, Germany (1 semester)

2013 - Associate Editor: *Journal of Bioactive and Compatible Polymers*

2013 UAH: Search Committee: VP for Research

2011, 12, 13 Fulbright Selection Committee

2012-2013 Technical Editor: *Journal of Bioactive and Compatible Polymers*

2008, 10, 12, 14 Organized/ Co-organized 9<sup>th</sup>, 10<sup>th</sup>, 11<sup>th</sup>, 12<sup>th</sup>, 13<sup>th</sup>, 14<sup>th</sup> Biorelated Polymers

16, 18 Symposium within International ACS Conferences

2010, 2012 Org. Committee: Internat. Conf. on Biomaterials 2011 and 2013, Tsukuba, Japan

2010-2012 UAH Research Council

2009 UAH Realignment Committee

2009 Editorial Board *Journal of Polymers and the Environment*

2009 Executive Editor: *Polymer International*

2008, 11, 14, 17 Organized Biomaterials Session at Mexican-American Polymer Symposium

2007-2013 Advisory Editorial Board *Journal of Bioactive and Compatible Polymers*

2007 Co-founded Alamanda Polymers, Inc.  
 2006 Sabbatical: University of Tokyo, Tokyo, Japan, (1 semester)  
 2005-2009 Associate Editor North America for *Polymer International*  
 2005 Organized ACS symposium: Degradable Polymers and Materials  
 2003-2011 Consultant Biodegradable Products Institute, New York, NY  
 2002/2003 Visiting Lecturer, Martin-Luther –University, Halle-Wittenberg, Germany  
 2002 Visiting Researcher, Tufts University, Medford, MA (summer 3 months)  
 2002-2005 Chair: University Laboratory Safety Committee  
 2002-2012 Member Boston Retinal Implant Project  
 2000, 2001 Visiting Researcher, University of New South Wales, Sydney Australia  
 1998-2011 Executive Officer, BEPS (Bio/Environmental Polymer Society)

***Current International Collaborations***

University of Technology, Dresden, Germany (contact: Dr. Gerlad Gerlach)  
 Martin Luther University, Halle-Wittenberg, Germany (contact: Dr. Joerg Kressler)  
 Oyama National College, Oyama, Japan (contact: Dr. Michihiro Iijima)

***Editorial Boards:***

Polymer International:	Executive Editorial Board
Journal of Polymers and the Environment	Editorial Board
Journal of Bioactive and Compatible Polymers	Associate Editorial Board & Technical Editor

***Students:***

Graduated with Ph.D. degree:

Dr. Jeff Sparks,	now: Celsion- Egen	Ph.D. advisor
Dr. Luke Theogarajan, at MIT	now: Professor at UCSB	Ph.D. co-advisor
Dr. Madan Gopal,	returned to India	Ph.D. co-advisor
Dr. Tracy Armstrong,	now: Nektar Therapeutics	Ph.D. advisor
Dr. Keerthi Venkataramanan,	now: Novozymes	Ph.D. advisor
Dr. Robyn Sweitzer	now: Redstone Arsenal	Ph.D. advisor
Dr. Javier Sanchez	now: Lonza Biologics, Spain	Ph.D. advisor
Dr. David Ulkoski	now: Astra-Zeneca	Ph.D. advisor
Dr. Samuel Nkrumah-Agyeefi	now: AlphaDERA Labs	Ph.D. advisor

Graduated with MS degree:

Radhika Thiruvencatam,  
 Balamurugan Marimuthu  
 Julie Zanzig  
 Meera Tiruvenkata  
 Mona Chaudhary  
 Mar Piernavieja  
 Stephen Bell  
 Luke Viegas

Advised: numerous undergraduate students

Postdoctoral Associates:

Dr. Willy Vayaboury	Alamanda Polymers, Huntsville, AL	post-doc advisor
Dr. Rodolphe Obeid	IntelgenX corp., Montreal	post-doc advisor
Dr. Javier Sanchez	now: Lonza Biologics, Spain	post-doc advisor
Dr. David Ulkoski	now: Astra-Zeneca	post-doc co-advisor

Foreign Students Advised (study abroad from their respective universities)

Marcus Jenzsch	Grad. Student, Chemistry, ML University Halle, Germany
Kristin Kirchhoff	Grad. Student Biotechnology, ML University Halle, Germany
Eva Vagnon	Grad. Student, Pharmacology, Univ. Montpellier, France
Steffen Fiedler	Grad. Student, Chem. Eng., ML University Halle, Germany

Sabine Kirsten	Grad. Student TU Dresden, Germany
Carola Jorsch	Grad. Student TU Dresden, Germany
Christoph Kroh	Grad. Student TU Dresden, Germany

Currently: three graduate students, four undergraduate students

**Teaching:**

- \* Polymer Synthesis and Characterization (CH 440/540, MTS 649)
- \* Polymer Physics (CH 645, MTS 747)
- \* Quantitative Analysis (CH 223)
- \* Polymeric Drug Delivery (CH 735, CHE 559)
- \* ST: Polymers in Drug Delivery: Polymeric Encapsulants, Polymer Characterization, Physical Polymer Characterization, Microbial Polymer Synthesis, Fluoropolymers
- \* Introduction to Chemical Research (CH 493, CH 492, CH 491)
- \* Chemistry Seminar (CH 780)
- \* Advanced Organic Chemistry Lab (CH 337)
- \* Elementary Organic Chemistry (CH 113)
- \* Freshmen Chemistry (CH 121)

**Services to the Profession:**

- \* Consultant to Biodegradable Polymer Institute, New York, NY (2001-2011)
- \* ACS (American Chemical Society)

**Publications:**

- \* 77 publications, (58 peer-reviewed, 19 conference proceedings)
- \* edited one book Wiley
- \* edited six books within the *ACS Symposium Series*
- \* edited a special issue on Polymers in Biomedical application for *Progress in Polymer Science* (impact factor: 16)
- \* Patents: 2 (USP 5,925,720, WO 2006076008)

**Research Projects: Current:**

- \* Collaborative Research: Biodiesel-derived butanol: Lipid membrane vesicle mediated extraction enables continuous fermentation processes  
NSF CBET 09/15-08/19
- \* PEGylated poly(amino acid) a polymer platform for biomedically relevant polymers
- \* Bacterial polyesters, synthesis and polymer-analogous conversions

**Research Projects: Finished:**

- \* Engineering Development of a Chronic Retinal Implant, funded by Boston VA Medical Center
- \* Collaborative Research: Investigating and Improving the Production of Butanol  
NSF CBET
- \* Effect of chemical diversity of crude oil on biochemical transformation  
Marine Environment Science Consortium (BP)
- \* Research into Bacterial Polyesters  
NSF, NASA Goodard, ACS-PRF

**Awards and honors:**

2014	College of Science Service Award
2000	Student-Government Association Outstanding Faculty Award

1994	Fellowship of the Japanese Society for the Promotion of Research on Cardiovascular Diseases	
1994	Humboldt Foundation Alumni	
1992	Feodor-Lynen Fellowship of the Alexander-von-Humboldt Foundation, Germany	
1991	graduated Dr. rer.nat. (Ph.D.)	magna cum laude
1987	graduated Dipl.-chem. (M.S.)	cum laude

**Languages:**

Fluent in English and German  
 Limited knowledge of Russian

**List of Publications**

Slomkowski, S., Fellows, C.M., Hiorns, R.C., Jones, R.G., Kubisa, P., Luscombe, C.K., Nakano, T., Russel, G.T., dos Santos, C.G., Scholz, C., Stingelin, N., Walter, M. “List of keywords for polymer science” *Pure Appl. Chem.* **2019**, 91 (6), 997-1027

Nkrumah-Agyeefi, S., Pella, B.J., Singh, N., Mukherjee, A., Scholz, C. “Modification of polyhydroxyalkanoates: evaluation of the effectiveness of novel copper (II) catalysts in click chemistry” *Internat. J. Biolog. Macromolec.* **2019**, 128, 376-384

Ulkoski, D., Scholz, C. “Impact of Cationic Charge Density and PEGylated Poly(amino acid) Tercopolymer Architecture on their use as Gene Delivery Vehicles. Part 2: DNA protection, Stability, Cytotoxicity, and Transfection Efficiency.” *Macromolecular Bioscience*, 2018, 18, 1800109 <https://doi.org/10.1002/mabi.201800108>

Ulkoski, D., Scholz, C. “Impact of Cationic Charge Density and PEGylated Poly(amino acid) Tercopolymer Architecture on their use as Gene Delivery Vehicles. Part 1: Synthesis, Self-Assembly, and DNA complexation” *Macromolecular Bioscience*, 2018, 18, 1800109 <https://doi.org/10.1002/mabi.201800109>

Ulkoski, D., Scholz, C. “Synthesis and Application of Auophilic Poly(Cysteine) and Poly(Cysteine)-Containing Copolymers” *Polymers*, **2017**, 9, 500

Nkrumah-Agyeefi, S., Scholz, C. “Chemical modification of functionalized polyhydroxyalkanoates via “click” chemistry: A proof of concept” *International Journal of Biological Macromolecules*, **2017**, 95, 796-808

Iijima, M., Ulkoski, D., Sakuma, S., Matsukuma, D., Nishiyama, N., Otsuka, H., Scholz, C. “Synthesis of PEGylated poly(amino acid) pentablock copolymers and their self-assembly” *Polym. Int.* **2016**, 65, 1132-1142

Jorsch, C., Schmidt, U., Ulkoski, D., Scholz, C., Guenther, M., Gerlach, G. “Implantable biomedical sensor array with biocompatible hermetic encapsulation” *J Sensors and Sensor Systems*, **2016**, 5, 229-235

Bothun, G.D., Boltz, L., Kurniawan, Y., Scholz, C. “Cooperative effects of fatty acids and n-butanol on lipid membrane phase behavior“ *Colloids and Surfaces B: Biointerfaces*, **2016**, 139, 62-67

Ulkoski, D., Meister, A., Busse, K., Kressler, J., and Scholz, C. “Synthesis and structure formation of block copolymers of poly(ethylene glycol) with homopolymers and random copolymers of *L*-glutamic acid  $\gamma$ -benzyl ester and *L*-leucine in water”, *J Colloid Polym Sci* , **2015**, 293, 2147-2155

Scholz, C. “Poly(amino acid) block Copolymers for Drug Delivery and Other Biomedical Applications” *Material Matters*, **2014**, 9(3), 73-82

Ulkoski, D., Scholz, C. “Bioadhesives – chemistry and mode of operation”  
In: Encyclopedia of Polymeric Nanomaterials (ed.: S. Kobayashi, K. Muellen), Springer Verlag Berlin, Heidelberg 2015, pg. 98 - 105

Scholz, C. , Matyjaszewski, K. “Advances in Atom Transfer Radical Polymerization”  
*Polymer International* **2014**, 63(5) 801-802 (Editor of Special Issue)

Venkataramanan, K.P., Kurniawan, Y., Boatman, J.J., Haynes, C.H., Taconi, K.A., Martin, L., Bothun, G.D., Scholz, C. “Homeoviscous Response of *Clostridium pasteurianum* 1 to Butanol Toxicity During Glycerol Fermentation ”  
*J. Biotechnol.* **2014**, 179 C 8-14

Obeid, R. Armstrong, T., Peng, X., Busse, K., Kressler, J., Scholz, C. “The behavior of poly(amino acids) containing *L*-cysteine and their block copolymers with poly(ethylene glycol) on gold surfaces “  
*Journal of Polymer Science, Part A, Polymer Science*, **2014**, 52(2), 248-257

Iijima, M., Ulkoski, D., Scholz, C. “Synthesis of Pentablock copolymers possessing both, PEG and two kinds of polyamino acid segments” *Polymer Preprints, Japan* **2013**, 62 (2)

Kurniawan, Y., Venkataramanan, K., Piernavienja, M., Scholz, C., Bothun, G.D. “Role of Ionic Strength on n-Butanol Partitioning into Anionic Dipalmitoyl Phosphatidylcholine/Phosphatidylglycerol Vesicles”  
*Journal of Physical Chemistry B*, **2013**, 117(28), 8484-8489.

Kurniawan, Y., Scholz, C., Bothun, G.D. “n-Butanol Partitioning at the Interface between Liquid Expanded and Liquid Condensed Phases in a Heterogeneous Lipid Monolayer”  
*Langmuir*, **2013**, 29(34), 10817-10823

Venkataramanan, K.P., Scholz, C. “Integrated Production of Butanol from Glycerol”  
In: “Biorefineries: Integrated Biochemical Processes for Liquid Biofuels (ed. N. Qureshi, D. Hodge, A.A. Vertes) Elsevier, **2014**, pg. 225-233

Ulkoski, D., Scholz, C. "Novel synthesis of ABC terpolymers based on poly(ethylene glycol) and poly(amino acid) copolymers" *Polymer Preprints*, **2012**, 53(1), 623-624

Ulkoski, D., Armstrong, T., Scholz, C. "Investigating the Secondary Structure of Poly(amino acids)" in: Tailored Polymer Architectures for Pharmaceutical and Biomedical Applications (ed. C. Scholz, J. Kressler) ACS Symposium Series 1135, **2013**, pp 69-85

Obeid, R., Armstrong, T., Ulkoski, D., Peng, X., Kressler, J., Scholz, C. "PEGylated poly(amino acid) block copolymers for surface modification and self-assembly: synthesis and characterization" *Polymer Preprints*, **2012**, 53(2), 334-335

Guenther, M., Gerlach, G., Wallmersperger, T., Avula, M.N., Cho, S.H., Xie, X., Devener, B.V., Solzbacher, F., Tathireddy, P., Magda, J.J., Scholz, C., Obeid, R., Armstrong, T. "Smart Hydrogel-Based Biochemical Microsensor Array for Medical Diagnostics" *Adv. Sci. Technol.* **2013**, 85, 47-52

Busse, K., Budde, H., Scholz, C., Kressler, J. "Bacterial poly( $\alpha$ -hydroxybutyrate): Hydrophilized and Colored" in: Degradable Polymers and Materials: Principles and Practice Second Edition (ed.: K. Khemani and C. Scholz), ACS Symposium Series, **2013**, 1114, 157-170

Kurniawan, Y., Venkataramanan, K.P., Scholz, C., Bothun, G.D. "n-Butanol partitioning and phase behavior in DPPC/DOPC membranes" *Journal of Physical Chemistry B*, **2012**, 116, 5919-5924

Venkataramanan, K.P., Boatman, J.J. Kurniawan, Y., Taconi, K.A., Bothun, G.D., Scholz, C. "Impact of Impurities in Biodiesel-Derived Crude Glycerol on the fermentation by *Clostridium pasteurianum* ATCC 6013" *Applied Microbiol. Biotechnol.* **2012**, 93(3), 1325-1335

Armstrong, T., Scholz, C. "Investigation of the secondary structure of oligomeric poly(amino acids)" *Polymer Preprints*, **2012**, 53(1), 600-601

Obeid, R., Scholz, C. "Synthesis and self-assembly of well-defined Poly(amino acid) end Capped Poly(ethylene glycol) and Poly(2-methyl-2-oxazoline)" *Biomacromolecules*, **2011**, 12 (10), 3797-3804

Obeid, R., Scholz, C. "Synthesis and self-assembly of well-defined polypeptide end-capped poly(ethylene glycol) and poly(2-methyl-2-oxazoline)" *Polymer Preprint*, **2011**, 52

Venkataramanan, K.P., Boatman, J.J., Kurniawan, Y., Scholz, C., Bothun, G.D., Taconi, K.A. "Butanol Production by *Clostridium pasteurianum* ATCC 6013 using Biodiesel-Derived Crude Glycerol: Microbial Response to Environmental Stress" *ACS Division of Fuel Chemistry pre-print*, **2010** (55)

Scholz, C. "Prospectives to produce positively or negatively charged polyhydroxyalkanoic acids". *Appl. Microbiol. Biotechnol.* **2010**, 88, 829-837

Theogarajan, L., Li, H., Busse, K., Desai, S., Kressler, J., Scholz, C. "Self-assembly of ABA triblock copolymers based on functionalized polydimethylsiloxane and polymethyloxazoline" *Polymer International*, **2010**, 59 (9), 1191-1198

Kilicay, E., Hazer, B., Coban, B., Scholz, C. "Synthesis and Characterization of Poly(ethylene glycol) Grafted Unsaturated Microbial Polyesters" *Hacettepe Journal of Biology and Chemistry* **2010**, 38(1) 9-17

Sparks, J., Scholz, C. "Evaluation of a cationic poly( $\alpha$ -hydroxyalkanoate) as a plasmid DNA delivery system" *Biomacromolec.* **2009**, 10, 1715-1719

Scholz, C. "The Molecular Structure of Degradable Polymers" in: Degradable Polymers for Skeletal Implants (ed.: I.J.M. Wuisman and T.H. Smit), Nova Science Publishers, Inc. Hauppauge, NY, **2009**, pp 3 - 20

Vayaboury, W., Scholz, C. "Synthesis of poly(amino acids) and poly(amino acid) block copolymers with controlled molecular weight" *Polymer Preprint* **2008**, 49(2), 486-487

Sparks, J., Scholz, C. "Synthesis and characterization of a cationic poly( $\alpha$ -hydroxyalkanoate)" *Biomacromolec.* **2008**, 9(8), 2091-2096

Gerber, S., Kirchhof, K., Kressler, J., Schmelzer, C.E., Scholz, C., Hertel, T.C., Pietzsch, M. "Cloning, Expression, Purification and Characterization of a Designer Protein with Repetitive Sequences" *Protein Expression and Purification* **2008**, 59, 203-214

Scholz, C. "Perspectives on: Material Aspects of Retinal Prostheses" *Journal of Bioactive and Compatible Polymers* **2007**, 22(5), 539-568

Theogarajan, L., Desai, S., Baldo, M., Scholz, C. "Versatile Synthesis of Self-assembling ABA Triblock Copolymers with Polymethyloxazoline A-blocks and a Polysiloxane B-block Decorated with Supramolecular Receptors" *Polymer Internat.* **2008**, 57, 660-667

Gerber, S., Kirchhof, K., Kressler, J., Schmelzer, C.E.H., Scholz, C., Hertel, T.C., Pietzsch, M. "Preparation and Characterization of an artificial peptide with repetitive sequences" *PMSE Preprints*, **2007**, 97, 31-33

Sparks, J., Scholz, C. "Water-soluble Poly(hydroxyalkanoate)s" *Polymer Preprints*, **2007**, 48(2), 806

Theogarajan, L., Desai, S., Baldo, M., Scholz, C. "Ion Responsive Polymeric Vesicles" *Polymer Preprints*, **2007**, 48(2), 1040

Theogarajan, L., Scholz, C., Desai, S., Jensen, R., Baldo, M., Rizzo, J.F. "Self assembling amphiphilic triblock polymers with side-chain mesogens in the hydrophobic core for neural prosthetic devices" *Polymer Preprints*, **2006**, 47(2) 145-146

Busse, K., Budde, H., Scholz, C. Kressler, J. "Bacterial Poly( $\beta$ -hydroxybutyrate): Hydrophilized and Colored" in: *Degradable Polymers and Materials: Principles and Practice* (ed.: K. Khemani and C. Scholz), ACS Symposium Series 939, Washington **2006**, 61-75

Scholz, C., Vayaboury, W., Sweitzer, R., Shire, D., Rizzo, J.F. "Surface modification of retinal implants" *Polymer Preprints*, **2006**, 47(2) 159-160

Montezuma S., Loewenstein, J., Scholz, C., Rizzo, J. "Biocompatibility of subretinal materials in Yucatan pigs" *Investigative Ophthalmology and Visual Science*, **2006**, 47(6), 3514-3522

Sweitzer, R., Montezuma, S., Rizzo, J., Scholz, C. "Evaluation of subretinal implants coated with amorphous aluminum oxide and diamond-like carbon" *Journal of Bioactive and Compatible Polymers* , **2006**, 21, 5-22

Townsend, K.J., Busse, K., Kressler, J., Scholz, C. "Contact Angle, WAXS and SAXS Analysis of Poly( $\beta$ -hydroxybutyrate) and Poly(ethylene glycol) Block Copolymers obtained via *Azotobacter vinelandii* UWD" *Biotechnology Progress*, **2005**, 21, 959-964

Wright, Y.J., Kar, A.K., Kim, Y.W., Scholz, C., George, M.A. "Study of Micropipette Assisted Polyethylene-Glycol Coating on Microcantilevers for Sensing Ethanol Vapor" *Sensors and Actuators B (Chemical)* **2005**, B107, 242-251

Montezuma, S., Loewenstein, J., Scholz, C., Rizzo, J. "Biocompatibility of subretinal materials in Yucatan pigs" *Investigative Ophthalmology and Visual Science* **2004**, (4) abstract 4169

Sweitzer, R., Stewart, P., Gingerich, M., Shire, D., Montezuma, S., Rizzo, J., Scholz, C. "Surface modification of retinal implants" *Polymer Preprints* **2004**, 45(2) 448-449

Sanguanchaipaiwong, V., Gabelish, C.L., Scholz, C. and Foster, L.J.R. "Biosynthesis of Polyhydroxyoctanoate – Polyethylene Glycol Block Copolymer by *Pseudomonas oleovorans*" *Biomacromolecules* **2004**, 5, 643-649

Zanzig, J.; Scholz, C. "Effects of Poly(ethylene glycol) on the production of poly( $\alpha$ -hydroxybutyrate) by *Azotobacter vinelandii* UWD" *J. Polym. Environm.* **2003**, 11(4) 145-154

Zanzig, J.; Marimuthu, B.; Werka, J.; Scholz, C. "Investigation of the Impact of Poly(ethylene glycol)-Modulation of Poly( $\alpha$ -hydroxybutyrate) Syntheses on Cell Interactions of the Resulting Polymers" *J. Bioactive Compatible Polymers* **2003**, 18(5) 339-354

Scholz, C.; Schmidt, J., Zanzig, J. "Natural Synthetic Hybrid Block Copolymers and their Cell Interactions" *Polymer Preprints* **2002**, 43(2) 713



Thiruvankatam, R., Scholz, C. "Synthesis of Poly( $\alpha$ -hydroxybutyrate) in Simulated Microgravity" *Journal of Polymers and the Environment*, **2002**, 8(4) 155-159

Thiruvankatam, R., Scholz C. "Production of Bacterial Polyesters in Simulated Microgravity" in: *Polymer Processing in Microgravity* (ed. J. Pojman), ACS Symposium Series 793, **2001**, 203-216

Jenzsch, M., Volk, N., Kressler, J., Scholz, C. "Synthesis of Microbial Poly(hydroxy butyrate) Modified with Oligo(pentaerythritol ethoxylate) by *Alcaligenes eutrophus*" *Biomacromolecules* **2001**, 2, 1055-1060

Thiruvankatam, R., Scholz, C. "Biopolymer production under simulated microgravity conditions" *Polymer Preprints* **2000**, 41 (1) 1064-1065

Thiruvankatam, R., Scholz, C. "Investigation of gas balance in microbial fermentation performed in the NASA bioreactor" *Polymer Preprints* **2000**, 41 (1) 1076-1077

Scholz, C., Gross, R.A. "Biopolyesters and Biocatalysis – Introduction" in: *Polymers from Renewable Resources Biopolyesters and Biocatalysis* (ed. C. Scholz, R.A. Gross) ACS Symposium Series 764, **2000**, 1-11

Scholz, C. "Poly( $\alpha$ -hydroxyalkanoates) as Potential Biomedical Materials: An Overview" in: *Polymers from Renewable Resources - Biopolyesters and Biocatalysis* (ed. C. Scholz, R.A. Gross), ACS Symposium series 764, **2000**, 328-334

Scholz, C. Mehta, S.; Nicolosi, R., Bisht, K., Guilmanov, V., Gross, R.A. "Bioactivity of extracellular glycolipids - Investigation of Potential Anti-Cancer Activity of Sphorolipids and Sphorolipid-Derivatives" *Polymer Preprints* **1998**, 39 (2) 168-169

Shi, F., Scholz, C., Deng, F., Gross, R.A. "Hybrid Natural-Synthetic Materials: Microbial Polyester-Polyethylene Glycol Adducts by In Vivo Processing" *Polymer Preprints* **1998**, 39 (2) 102-103

Scholz, C., Iijima, M., Nagasaki, Y., Kataoka, K. "Polymeric Micelles as Drug Delivery Systems: A Reactive Polymeric Micelle Carrying Aldehyde" *Polym.Adv.Technol.* **1998**, 9, 768-776

Nagasaki, Y., Okada, T., Scholz, C., Iijima, M., Kato, M., Kataoka, K. "The Reactive Polymeric Micelle Based on Aldehyde-ended Poly(ethylene glycol)/Poly(lactide) Block Copolymer" *Macromolecules* **1998**, 31 1473-1479

Nagasaki, Y., Iijima, M., Okada, T., Scholz, C., Kato, M., Kataoka, K. "The 'Reactive Polymeric Micelle', a Convenient Tool for targeting Drug Delivery Systems" *Polymer Preprints* **1997**, 38 (2) 576-577

Scholz, C., Iijima, M., Nagasaki, Y., Kataoka, K. "A Novel Reactive Polymeric Micelle - Polymeric Micelle with Aldehyde Groups on its Surface" *Macromolecules* **1995**, 28 7295-7297

Scholz, C., Lenz, R.W., Fuller, R.C. "Growth Behavior of *Bacillus thuringiensis* on Different Carbon Sources and Formation of poly(3-hydroxyalkanoates)" *Polym.Bull.* **1995** 34 577-584

Scholz, C., Lenz, R.W., Fuller, R.C. "Production of Poly- $\beta$ -hydroxyalkanoates With  $\beta$ -Substituents Containing Terminal Ester Groups by *Pseudomonas oleovorans*" *Macromol.Chem.Phys.* **1994** 195 1405-1421

Scholz, C., Lenz, R.W., Fuller, R.C. "Growth and Polymer Incorporation of *Pseudomonas oleovorans* on Different Esters of Heptanoic Acid" *Macromolecules* **1994** 27 2886-2889

Lenz, R.W., Fuller, R.C. Scholz, C., Touraud, F. "Bacterial Synthesis of poly- $\beta$ -hydroxyalkanoates with functionalized side chains" in: Biodegradable Plastics and Polymers (ed. Y. Doi, K. Fukuda) Elsevier Science B.V. **1994** 109-119

Scholz, C., Wolk, S. Lenz, R.W., Fuller, R.C. "Growth and Polyester Production by *Pseudomonas oleovorans* on Branched Octanoic Acid Substrates" *Macromolecules* **1994** 27 6358-6362

Scholz, C., Flath, H.J. "Untersuchungen zur inneren Struktur von Modalfasern" *Textilveredlung* **1993** 28 9-13  
(“Investigation of the internal structure of high wet modulus fibers”)

Scholz, C., Flath, H.J. "Charakterisierung zugänglicher Strukturanteile in Cellulosefasern" *Melliand Textilberichte* **1993** 74 219-221  
(“Characterization of accessible structural regions in cellulosic fibers”)

Scholz, C., Flath, H.J. "Zum Einfluß von Metallspuren auf Färbungen mit Reaktiv-farbstoffen" *Textilpraxis International* **1992** 9 826-833  
(“The influence of metal traces on dyeing with reactive dyestuffs”)

Scholz, C., Flath, H.J. "Zur Strukturbestimmung von Cellulosefaserstoffen mit Hilfe der Jodsorption"; *Textilveredlung* **1991** 26 188-191  
(“Determination of the structure of cellulosic fibers using iodine sorption technique”)

Flath, H.J., Scholz, C. "Beiträge zur Charakterisierung des amorphen Anteils in Cellulosefaserstoffen"; VII. Internationales Arbeitsseminar "Struktur und Reaktivität der Cellulose" 10.5. - 13.5. 1988 Reinhardsbrunn, Tagungsband I, S. 159-172  
(“Contributions to the characterization of the amorphous part of cellulosic fibers”)

## Books

**Scholz, C.** Polymers for Biomedicine, John Wiley & Sons, Inc. **2017**

**Scholz, C., Kressler, J.** Tailored Polymer Architectures for Pharmaceutical and Biomedical Applications *ACS Symposium Series 1135*, **2013**

**Khemani, K., Scholz, C.** Degradable Polymers and Materials – Principle and Practice 2<sup>nd</sup> edition *ACS Symposium Series 1114*, **2013**

**Kataoka, K., Scholz, C.** (Guest Editors) Special Issue on Polymers in Biomedical Applications *Progress in Polymer Science*, *32*, 8-9, **2007**

**Khemani, K., Scholz, C.** Degradable Polymers and Materials – Principle and Practice *ACS Symposium Series 939*, **2006**

**Scholz, C., Gross, R.A.** Polymers from Renewable Resources: Biopolyesters and Biocatalysis, *ACS Symposium Series 764*, **2000**

**Gross, R.A., Scholz, C.** Biopolymers from Polysaccharides and Agroproteins, *ACS Symposium Series 786*, **2001**

## Patents

**Scholz, C., Venkataramanan, K.P., Bothun, G.D.** “Bioconversion of crude biodiesel-derived glycerol to butanol by *Clostridium pasteurianum*”  
PCT Int. Appl. (2013), WO 2013033665 A1 20130307  
Date of Application: 9/1/2012

**Kataoka, K. Scholz, C.; Iijima, M.; Kutsuna, T.; Nagasaki, Y.; Kato, M.; Okano, T.**  
“Heterotelechelic block copolymers and process for producing the same”  
Japanese Patent Number 953254, US Patent Number 5,925,720, approved in another 20 countries

## Oral Presentations at International Conferences

### **Active and Polymeric Materials and Microsystems 2019**

September 16 -19, 2019, Dresden, Germany

“Poly(amino acid)s as active polymeric materials in sensing and chromatographic applications”

Invited

### **28th International Materials Research Congress**

August 18 – 22, 2019, Cancun, Mexico

“Expanding the Horizon for poly( $\beta$ -hydroxyalkanoate)s: Polymer-analogous Conversions and Click Chemistry”

Invited

### **83rd Prague Meeting on Macromolecules: Polymers in Medicine**

June 24 – 27, 2019, Prague, Czech Republic

“Poly(amino acid) in biomedicine: From Gene delivery to implant coatings”

### **257th ACS Spring National Meeting: Polymer-based gene and drug delivery systems**

March 31 – April 4, 2019, Orlando, FL

Poly(amino acid)-based gene delivery systems: The story starts after the synthesis

### **80th Annual Meeting of the Association of Southeastern Biologists**

April 3 – 6, 2019, Memphis, TN

"Conversion of Glycerol to Butanol Using a Continuous Culture of *Clostridium pasteurianum*"

Presented by Jonathan Kilroy

### **National Conference on Undergraduate Research**

April 10-13, 2019 in Kennesaw, GA

“Conversion of Glycerol to Butanol Using a Continuous Culture of *Clostridium pasteurianum*”

Presented by Jonathan Kilroy

### **50 Congreso Internacional Red Biot**

October 25, 2018, Centro de Investigacion Cientifica de Yucatan Merida, Mexico

Poly(amino acid)s – A Broad Spectrum of Properties and Applications

### **Tissue Engineering: Poliaminoacidos y peptidos como biomaterials y sus aplicaciones en ingenieria tisular**

October 22 – 24, 2018 Centro de Investigacion Cientifica de Yucatan, Merida, Mexico

“Polyaminoacids and polypeptides as biomaterials”

“Application of Poly(amino acid)s: Ranging from Gene Delivery Systems to Surface Coatings”

### **25th Annual Meeting of the BioEnvironmental Polymer Society**

August 15-17, 2018, Rensselaer University, Troy, NY

Affinity Chromatography based on poly(amino acid)s

***INVITED LECTURE***

**Macromex 2017**

December 3 – 7, 2017, Los Cabos, Mexico

Impact of Molecular Architecture of PEGylated Poly(amino acid)s on their Biorelevant Properties

**43rd Annual Meeting : The National Organization for the Professional Advancement of Black Chemists and Chemical Engineers**

November 8 – 12, 2016, Raleigh, NC

Chemical Modification of polyhydroxyalkanoates via click chemistry: A proof of concept

Presented by Samuel Nkrumah-Agyeefi

**PPC 14 (Pacific Polymer Conference)**

December 9 – 13, 2015, Kauai, HI

PEGylated Poly(amino acid)s in Gene Delivery

**249th ACS meeting Symposium on Polymeric Biomaterials**

March 22 – 26, 2015, Denver, CO

Self-assembly of PEGylated poly(amino acid)s and their use in DNA complexation

**Macromex 2014**

December 2– 6, 2014, Puerto Vallarta, Mexico

“PEGylated poly(amino acid)s – A Versatile Biopolymer Platform”

**63rd SPSJ Annual Meeting**

May 28 - 30, 2014, Nagoya, Japan

Precise synthesis of penta-block copolymers possessing both PEG and poly(amino acid)s and evaluation of their functionalities

Presented by Mr. Sakuma

**247th ACS meeting, 12th Symposium on Biorelated Polymers**

March 16-20, 2014, Dallas, TX

PEGylated poly(amino acid)s – A platform for biomedical copolymers

**15th IUMRS International Conference in Asia**

August 24 – 30, 2014, Fukuoka, Japan

Synthesis of pentablock copolymers possessing both PEG and poly(amino acid) segments and evaluation of their functionalities

Presented by: Dr. Iijima

**Frontiers in Biomedical Polymers Symposium**

June 3 – 5, 2013, Vancouver, Canada

“Block copolymers of Poly(amino acid)s – a Platform for Biomedical Materials”

**245th ACS meeting, Undergraduate Research in Polymer Science**

April 7 – 11, 2013, New Orleans, LA

“MicroMRI transport study of polymer beacons for DNA delivery and image contrast”

M.D. Boatwright, X. Wang, C. Scholz, L.A. Madsen

Presented by M.D. Boatwright

**245<sup>th</sup> ACS meeting, Bottom-Up Design of the Next Generation of Biomaterials**

April 7 – 11, 2013, New Orleans

“Multiblock Copolymers based on PEGylated poly(amino acid)s”

C. Scholz, M. Iijima, D. Ulkoski

Presented by Dr. Iijima

***INVITED LECTURE***

**Polymeric Materials 2012**

September 12 – 14, 2012 Halle, Germany

“Amphiphilic reactive block copolymers for the surface modification of retinal implants”

**38<sup>th</sup> Northeast Regional Meeting of ACS**

**Advances in Energy and Fuel Chemistry, Biofuels**

September 30 - October 3, 2012 Rochester, NY.

“n-Butanol effects on heterogeneous biomembranes: Restructuring of mixed DPPC/DOPC monolayers”

Y. Kurnikawan, G. Bothun, C. Scholz,

Presented by. Y. Kurnikawan

**244<sup>th</sup> ACS meeting, Polymer Division, Green Polymer Chemistry Symposium**

August 19 – 23, 2012, Philadelphia, PA

“PEGylated poly(amino acid) block copolymers for surface modification and self-assembly: Synthesis and Characterization”

**2012 AIChE Annual Meeting, Fundamentals of Interfacial Phenomena**

October 28 – November 2, 2012, Pittsburgh, PA

“Molecular Packing and Phase Behavior of Heterogenous Lipid Monolayers in the Presence of n-butanol”

Y. Kurnikawan, K. Venkataramanan, C. Scholz, G. Bothun

Presented by: G. Bothun

**2012 AIChE Annual Meeting, Fundamentals of Interfacial Phenomena**

October 28 – November 2, 2012, Pittsburgh, PA

Kurniawan, Y., Venkataramanan, K.P., Boatman, J.J., Haynes, C.H., Martin, L., Bothun, G.D., Taconi, K.A., Scholz, C.

“Homeoviscous Response of Clostridium Pasteurianum to Butanol”

Presented by Y. Kurniawan

**4<sup>th</sup> International Conference: Smart Materials Systems**

June 10 – 14, 2012, Montecatini Terme, Italy

“Smart Hydrogel-Based Biochemical Microsensor Array for Medical Diagnostics”

Authors: M. Guenther, G. Gerlach, T. Wallmersberger, M.N. Avula, S.H. Cho, X. Xie, B.V. Devener, P. Tahtireddy, J.J. Magda, C. Scholz, R. Obeid. T. Armstrong

Presented by: M. Guenther

**243<sup>rd</sup> ACS meeting, Polymer Division, 11<sup>th</sup> Biorelated Polymer Symposium**

March 25 – 30, 2012, San Diego, CA

“Investigation of the secondary structure of oligomeric poly(amino acid)s ”

**Macromex 2011**

December 7 – 10, 2011, Cancun, Mexico

“Polymeric Coatings for Retinal Prostheses”

**2011 AIChE Annual Meeting, Food, Pharmaceutical & Bioengineering Division: Biobased Fuels and Chemicals**

October 16 – 21, 2011, Minneapolis, MN

Authors: Kurniawan Y, Bothun GD, Venkataramanan KP and Scholz C.

“Role of Lipid Saturation in Modulating the Effects of n-Butanol on Membrane Phase Behavior”

Presented by: G. Bothun

**242<sup>nd</sup> ACS meeting, Fuel Division, Fuel: Green Chemistry for Sustainable Production of Fuels, Chemicals and Energy**

August 28 – September 1, 2011, Denver, CO

Authors: Venkataramanan KP, Boatman JJ, Scholz C, Taconi KA, Kurniawan Y, and Bothun GD.

“Butanol Production by *Clostridium pasteurianum* ATCC 6013 using Biodiesel-Derived Crude Glycerol: Microbial Response to Environmental Stress”

Presented by: K. Venkataramanan

**INVITED LECTURE**

**241<sup>st</sup> ACS meeting, Symposium in memory of Robert W. Lenz**

March 27 –31, 2011, Anaheim, CA

“Making the Blind See”

**241<sup>st</sup> ACS meeting, Polymer Division, 9<sup>th</sup> International Biorelated Polymer Symposium**

March 27 –31, 2011, Anaheim, CA

“Synthesis and self-assembly of well-defined polypeptide end-capped poly(ethylene glycol) and poly(2-methyl-oxazoline)”

Authors: Obeid, R., Scholz, C.

Presented by R. Obeid

**2010 AIChE Annual Meeting,**

November 7 – 12, 2010 Salt Lake City, UT

“Study on the effect of the impurities in the bio-diesel-derived crude glycerol on growth and fermentation of *C. pasteurianum*”

Authors: K. Venkataraman, T. Armstrong, C. Scholz, K. Taconi, Y. Kurnikawan, G. Bothun

Presented by K. Venkataraman

**240<sup>th</sup> ACS meeting, Polymer Division, 9<sup>th</sup> International Biorelated Polymer Symposium**

August 22 – 26, 2010, Boston, MA

“Block Copolymers for the Surface Modification of Retinal Implants”

**MACROMEX 2008, Inaugural US-Mexico Symposium on Advances in Polymer Science**

December 7 –10, 2008, Los Cabos, Mexico

“Poly(amino acids) and PEGylated poly(amino acids) for surface modification of neural prostheses”

**236<sup>th</sup> ACS meeting, Polymer Division, 8<sup>th</sup> International Biorelated Polymer Symposium**

August 17 – 21, 2008, Philadelphia, PA

“Synthesis of poly(amino acids) and poly(amino acid) block copolymers with controlled molecular weight”

**15<sup>th</sup> Annual Meeting of the BioEnvironmental Polymer Society**

October 17 - 20, 2007, Vancouver, WA

“Water-soluble poly(hydroxyalkanoates)”

**234<sup>th</sup> ACS meeting, Polymer Division**

August 19 – 23, 2007, Boston, MA

“Water-soluble Poly(hydroxyalkanoates)”

**232<sup>nd</sup> ACS meeting, Polymer Division, 7<sup>th</sup> International Biorelated Polymer Symposium**

September, 10 – 14, 2006, San Francisco, CA

“Surface Modification of Retinal implants”

**World Polymer Congress, 41<sup>st</sup> International Symposium on Macromolecules**

**MACRO 2006**

July 16 – 21, 2006, 2006, Rio de Janeiro, Brazil

“Retinal Implants: Hermetic and Biocompatible Encapsulation”

**International Chemical Congress of Pacific Basin Societies (PACIFICHEM)**

December 15-20, 2005, Honolulu, HI

“Surface Coatings for Retinal Prostheses”

**228<sup>th</sup> ACS meeting, Polymer Division, Degradable Polymers and Materials**

March 13 – 17, 2005, San Diego, CA

**SYMPOSIUM ORGANIZER**

**228<sup>th</sup> ACS meeting, Polymer Division, 6<sup>th</sup> International Biorelated Polymer Symposium**

August 22 – 26, 2004, Philadelphia, PA

“Surface Modification of Retinal implants”



**227<sup>th</sup> ACS meeting, Polymer Division, Cellulose Division, Production and Utilization of Microbial Polymers**

March 28 – April 1, 2004, Anaheim, CA

“Microbial Synthesis of Natural-synthetic hybrid copolymers and evaluation of copolymer-cell interaction”

**MACRO 2004 – 40<sup>th</sup> IUPAC World Polymer Congress**

July 4 – 9, 2004, Paris, France

“Biosynthesis of Natural-Synthetic Hybrid Block Copolymers: mclPHA-DEG

Authors: L.J.R. Foster, V. Sanguanchaipaiwong, C. Gaebelish, J. Hook, C. Scholz

Presented by: L.J.R. Foster

**227<sup>th</sup> ACS meeting, Division of Cellulose and Renewable Materials**

March 28 – April 1, 2004, Anaheim, CA

“Microbial Synthesis of Natural-synthetic Hybrid Copolymers and Evaluation of Copolymer-cell Interactions”

**11<sup>th</sup> Annual Meeting of the BioEnvironmental Polymer Society**

August 10 – 13, 2003, 2003, Denver, CO

“Microbial Polymer Synthesis in Simulated Microgravity – An Investigation of Nutrient Distribution”

**225<sup>th</sup> ACS meeting, Division of Cellulose and Renewable Materials**

March 23 –27, 2003 New Orleans, LA

“Investigation of bacterial fermentation for potential syntheses of tissue-compatible natural-synthetic copolymers”

Authors: J. Sparks, J. Zanzig, C. Scholz

presented by Jeff Sparks

**2003 Spring Meeting of the Materials Research Society**

April 21-25, 2003, San Francisco, CA

“Tetrahedral Amorphous Carbon Films for Encapsulation of Flexible Neural Stimulant Microelectronic Implant”

Authors: R. P. Camata, M. Bulut, R. Sweitzer, C. Scholz, and D. B. Shire,

Presented by Mevlut Bulut

**10<sup>th</sup> Annual Meeting of the BioEnvironmental Polymer Society**

September 10 - 14, 2002, Albuquerque, NM

“Cell Growth Studies on Block Copolymers Consisting of Poly( $\beta$ -hydroxybutyrate) and Poly(ethylene glycol)”

**224<sup>th</sup> ACS meeting, 5<sup>th</sup> international Biorelated Polymers Symposium: PEGylated Biomaterials and Applications**

August 18 – 22, 2002, Boston, MA

“Natural-synthetic hybrid block copolymers and their cell interactions”

**224<sup>th</sup> ACS meeting, Biopolymer Engineering**

August 18 – 22, 2002, Boston, MA

“Investigation of *Azotobacter vinelandii* UWD for potential synthesis of natural-synthetic hybrid block copolymers”

**INVITED LECTURE:**

**Polymer Chemistry: Past, Present and Future**

**A symposium Honoring Robert W. Lenz**

August 14 – 17, 2002, Amherst, MA

“Taking Bacterial Polyesters to a New Frontier – Synthesis in Simulated Microgravity”

**9<sup>th</sup> Annual Meeting of the BioEnvironmental Polymer Society**

December 12 – 16, 2000, Honolulu, HI

“Progress in Biopolymer Synthesis in Simulated Microgravity”

**221<sup>st</sup> ACS meeting, Symposium on “Polymer Processing in Microgravity “**

March 25 – 30, 2000, San Francisco, CA

“Biopolymer production under simulated microgravity conditions”

**3<sup>rd</sup> International Polymer Symposium on Polymeric Drugs and Drug Delivery Systems**

August 23 - 25, 1998, Boston, MA

“Bioactivity of extracellular glycolipids - Investigation of Potential Anti-Cancer Activity of Sphorolipids and Sphorolipid-Derivatives”

**216<sup>th</sup> ACS meeting, Symposium on “Polymers from Renewable Resources”**

August 23 - 25, 1998, Boston, MA

“Hybrid Natural-Synthetic Materials: Microbial Polyester-Polyethylene Glycol Adducts by In Vivo Processing”

**4<sup>th</sup> International Symposium on Polymers for Advanced Technologies**

August 31 - September 4, 1997, Leipzig, Germany

“Reactive Polymeric Micelles for Drug Delivery Systems and Surface Treatment”

**4<sup>th</sup> Pacific Polymer Conference**

December 12 - 16, 1995 Koloa, Kauai, Hawaii

“A Novel Polymeric Micelle - Polymeric Micelles with Aldehyde Groups on its Surface”

**5<sup>th</sup> SPSJ International Polymer Conference**

November 28 - December 1, 1994, Osaka, Japan

“Bacterial Synthesis and Structure of Poly- $\beta$ -Hydroxyalkanoates with Side Chain Functional Groups”

**Main Lecture**

**3<sup>rd</sup> National Meeting Bio/Environmentally Degradable Polymer Society**

June 6 - 8, 1994 Boston

“Polymer Production with *Bacillus thuringiensis*”

**2nd National Meeting Bio/Environmentally Degradable Polymer Society**

August 19 - 21, 1993, Chicago

“Poly- $\beta$ -Hydroxyalkanoates from Unusual Carbon Sources”

**23rd ACS Northeast Regional Meeting**

June 22 - 25, 1993, Boston

“Poly- $\beta$ -Hydroxyalkanoates from Methyl Esters of Alkanoic Acids”

## Invited Lectures

“Poly(amino acid)s – Polymers with many functions”  
Summer School des DFG Graduiertenkolleg “Hydrogel-based microsystems”  
Radebeul, Germany  
September 19. -22, 2016

“PEGylated poly(amino acid)s – A Platform for Biomedical Polymers  
Or: How to make things invisible”  
Department of Chemical Engineering  
University of Rhode Island  
April 2, 2015

PEGylated poly(amino acid)s – A Platform for Biomedical Polymers”  
Department of Chemistry  
Technische Univesitaet Braunschweig  
October, 13 -14, 2014

“PEGylated poly(amino acid)s – A Platform for Biomedical Polymers  
Or: How to make things invisible”  
Graduiertenkolleg TU Dresden  
October, 21 – 22, 2014

“PEGylated poly(amino acid)s – A Platform for Biomedical Polymers”  
Department of Chemistry  
Louisiana State University, Baton Rouge, LA  
October 4, 2013

“What is New in Polyhydroxyalkanoic Acids?”  
CRP Gabriel Lippmann, Département Environment et Agro-biotechnologies (EVA)  
Biopolymers  
(Gabriel Lippmann Research Institute, Department of Environmental and Agro-biotechnological  
Studies – Biopolymers Division)  
Luxembourg  
June 14, 2010

“Encapsulation of Retinal implants”  
Technische Universität Dresden, Institut für Festkörperelektronik  
(University of Technology, Solid State Electronics Research Institute)  
June 9, 2010

“Materials Aspects of Retinal Prostheses”  
Clark University Atlanta, GA  
April 21, 2009

“Materials Aspects of Retinal Prostheses”

Department of Mechanical and Aerospace Engineering, UAH

September 25, 2009

“Materials Aspects of Retinal Prostheses”

Naturwissenschaftliches und Medizinisches Institut an der Universität Tübingen

(Natural and Medical Sciences Institute at the University of Tübingen)

June 16, 2008

“Materials Aspects of Retinal Prostheses”

Mt. Berry College, Rome, GA

February 21, 2008

"Poly(ethylene glycol-b-amino acid) block copolymers as surface coatings for retinal prostheses"

Martin Luther University Halle-Wittenberg, Germany

Department of Chemistry

June 18, 2007

"Surface Modification of Retinal Implants"

University of Memphis

Department of Biomedical Engineering

March 2, 2007

### **Sabbatical January 2006**

Surface Modifications of Retinal Implants

at:       The University of Tokyo  
          Tokyo Women's Medical University  
          Kyoto Institute of Technology  
          Osaka University  
          The University of the South Pacific, Suva, Fiji

*PEG derivatives of PHA's and poly(amino acids) for Biomedical Application*

at:       Riken: Polymer Chemistry Laboratory  
          University of Tsukuba

### **Summer 2003 and 2004**

Mini Series taught at Martin Luther University Halle-Wittenberg

Topics: Biodegradable and Biocompatible Polymers

          Microbial Polyesters

          Functionalized Poly(b-hydroxyalkanoates)

          Biodegradation

## Poster Presentations

15<sup>th</sup> IUMRS International Conference in Asia (IUMRS-ICA 2014)

August 24 – 30, 2014, Fukuoka

“Synthesis of pentablock copolymers possessing both PEG and poly(amino acid) segments and evaluation of their functionalities”

Iijima, M., Sakuma, S., Haishima, Y., Ulkoski, D., Scholz, C. , Presented by: Dr. M. Iijima

2013 SPSJ Meeting

September 11- 13, 2013, Kanazawa University, Japan

“Synthesis of Pentablock copolymers possessing both, PEG and two kinds of polyamino acid segments”

Iijima, M., Ulkoski, D., Scholz, C. , Presented by: Dr. M. Iijima

2012 AIChE Annual Meeting, Bioengineering

October 28 - November 2, 2012, Pittsburgh, PA

“Homeoviscous Response of Clostridium Pasteurianum to Butanol”

Y. Kurnikawan, K. P. Venkataramanan, J.J. Boatman, C. H. Haynes, L. M. Martin, G. D. Bothun, K.A. Taconi, C. Scholz, Presented by: Y. Kurnikawan

243<sup>rd</sup> ACS meeting, Polymer Division, 11<sup>th</sup> Biorelated Polymer Symposium

March 25 – 30, 2012, San Diego, CA

“Novel Synthesis of ABC terpolymers based on poly(ethylene glycol) and poly(amino acid) copolymers

D. Ulkoski, T. Armstrong, C. Scholz, Presented by David Ulkoski

2010 AIChE Annual Meeting,

November 7 – 12, 2010 Salt Lake City

“Study on the effect of the impurities in the bio-diesel-derived crude glycerol on growth and fermentation of *C. pasteurianum*”

K. Venkataramanan, T. Armstrong, C. Scholz, K. Taconi, Y. Kurnikawan, G. Bothun, Presented by K. Venkataramanan

ARVO 2008

April 27 – May 1, 2008 Ft. Lauderdale, FL

”Synthesis and Characterization of Biocompatible Block Copolymers for Coating Subretinal Prostheses”

ARVO 3019/D615 Scholz, C., Vayaboury, W., Shire, D.B., Rizzo, J.F.

15<sup>th</sup> Annual Meeting of the BioEnvironmental Polymer Society

October 17 - 20, 2007, Vancouver, WA

Tailor-Made Polypeptides

ARVO 2007

May 6 – 10, 2007 Ft. Lauderdale, FL

”Biocompatible Block Copolymers for Coating Sub-Retinal Prostheses”

ARVO 665/B289 Scholz, C., Vayaboury, W., Shire, D.B., Rizzo, J.F.

ARVO 2007

May 6 – 10, 2007 Ft. Lauderdale, FL

”*In vitro* Biocompatibility of Polymers Used in the Fabrication of Microelectrode Arrays”

ARVO 672/B296 Franco, L.M., Uhlenhuth, M., Osasona, A., Vayaboury, W., Scholz, C., Shire, D.B., Rizzo, J.F., Kaplan, H.J., Enzmann, V.

4<sup>th</sup> International Nanomedicine and Drug Delivery Symposium-Omaha, NanoDDS’06

October 8-10, 2006, Omaha, NE

“Retinal Implants: Materials Aspects of Encapsulants”

Association for Research in Vision and Ophthalmology

April 25 – 29, 2004, Ft. Lauderdale

“Biocompatibility of subretinal materials in Yucatan pigs”, presented by: S. Montezuma, MEEI

Association for Research in Vision and Ophthalmology

May 4 – 9, 2003, Ft. Lauderdale

“Packaging Development for Retinal Prostheses” presented by: D. Shire, Cornell

Flexible Electronics – Materials and Device Technology

Symposium of the Materials Research Society

April 22 – 25, 2003, San Francisco

“Tetrahedral amorphous carbon films for encapsulation of flexible neural stimulant microelectronic implants”  
presented by: R. Camato, UAB

Gordon Research Conference Biodegradable Polymers

July 8 – 13, 2001 Oxford, UK

“Cell Growth Studies on Biodegradable Block Copolymers Consisting of Poly( $\beta$ -hydroxybutyrate) and Poly(ethylene glycol)”

Frontiers in Biomedical Polymers – Symposium

May 16 – 19, 2001, Williamsburg, VA

“Cell Growth Studies on Natural Synthetic Block Copolymers”,

UMass Women’s Conference Our voices – our visions - “Put Space into your Life”

April 28, 2001, Amherst, MA

“Bacterial Polymer Production in Space”