

RICHARD L. LEHMAN

Professor – *Materials Science & Engineering*
Director – *Advanced Polymer Center*
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PROFESSIONAL PREPARATION

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| Rutgers University | Ceramic Science and Engineering | BS |
| Rutgers University | Ceramic Science and Engineering | MS |
| Rutgers University | Ceramic Science and Engineering | PhD |

APPOINTMENTS

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|---|-----------------|
| Director, Corning/Rutgers Glass Science and Engineering Laboratory | 2011 -- Present |
| Director, AMIPP Advanced Polymer Center, Rutgers University | 2002 -- Present |
| Department Chair, Materials Science and Engineering, Rutgers University | 2010 -- 2020 |
| Professor, Materials Science and Engineering, Rutgers University | 1996 -- Present |
| Assistant Director, Fiber Optics Materials Research Program, Rutgers University | 1986 -- 2010 |
| Associate Professor, Materials Science and Engineering, Rutgers University | 1986 -- 1996 |
| Assistant Professor, Materials Science and Engineering, Rutgers University | 1982 -- 1986 |
| Manager, Commercial/Technical Development, FMC Corporation | 1980 -- 1981 |
| Marketing Product Manager, Polymer Additives, FMC Corporation | 1981 -- 1982 |
| Group Leader and Research Engineering, R&D Center, FMC Corporation | 1978 -- 1981 |
| Glass Technologist, R&D Center, Johns-Manville Fiberglass, Toledo, OH | 1972 -- 1973 |

PRODUCTS

Published Books:

1. Introduction to Computing for Engineers, Fortran and Its Application in Engineering, by Richard L. Lehman, Kendall/Hunt Publishing Company, Dubuque, Iowa, ISBN 0-7872-7402-X (2000)
2. Environmental Technologies for Glass, A Guide to Green Manufacturing, Edited and with Authored Chapter Introductions by Richard L. Lehman and Yuya Umezu, Ashlee Publishing, 18 E. 41st Street, New York, NY (1996)
3. Handbook on Continuous Fiber Ceramic Composites, Edited by Richard L. Lehman, Said K. El-Rahaiby, and John B. Wachtman, Jr., Ceramics Information Analysis Center, Purdue University, West Lafayette, IN 47906-1398, 600 pages. (1995)

Selected Refereed Journal Articles:

1. Monika Kazancioglu, Richard Lehman, Thomas Emge, Masanori Hara, "Synthesis and characterization of silica-derived, silicate polymers: monovalent (rubidium) /divalent (strontium) system", Journal of Non-Crystalline Solids, Vol 600, 2023, pp 122030, doi.org/10.1016/j.jnoncrysol.2022.122030, 15 January 2023
2. M Kazancioglu, G Tsilomelekis, R Lehman, M Hara, "FTIR studies on plasticization of silicate glass with ionic liquids (conversion to silicate polymers)", Journal of Non-Crystalline Solids, Vol 561, pp 120757, June 6, 2021.

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3. M. Kazancioglu , R. Lehman , M. Hara, Inorganic silicate polymers made directly from silica using ionic liquid as ionic plasticizer: Monovalent-only system, *Materials Today Communications*, Volume 24, September 2020, 101058.
4. Monika Kazancioglu, Richard Lehman, Masanori Hara, et al., "Inorganic polymers made directly from silica", *Materialia*, 2019 – Elsevier Materialia, Vol 8, December 2019, 100486. doi.org/10.1016/j.mtla.2019.100486
5. G. Giancola, R. Lehman and J.D. Idol, "Sustainable Polymer Composites: Immiscible Blends Prepared by Extrusion of Poly (trimethylene terephthalate) and Polyamide6,10 with High Bio-Based Content," *International Journal of Sustainable Engineering*, Volume 6, Issue 2, pp. 171-176 (2013)
6. G. Giancola, R.L. Lehman and J. D. Idol, "Melt processing and domain morphology of PMMA/HDPE polymer blends prepared from powder precursors," *Journal of Powder Technology*, 218, 18–22 (2012)
7. G. Giancola, R.L. Lehman and S. Miller, Phase Inversion Composition and Domain Identification by Energy Dispersive Spectroscopy in Immiscible Blends of Poly (trimethylene terephthalate) and Polyamide6,10, *Polymer Engineering and Science*, Volume 52, issue 7, pp. 1548-1554 (2012)
8. G. Giancola and R.L. Lehman, "In-situ formation of nano-scale PMMA network structures on the surface of immiscible polymer blends by solvent extraction and redeposition," *Journal of Polymer Engineering*, Volume 32, Issue 3, pp. 157-161 January (2012)
9. G. Giancola and R.L. Lehman, "Viscosity and domain morphology in binary immiscible blends of poly (trimethylene terephthalate) and polyamide6,10," *Journal of Polymer Engineering*, Volume 32, Issue 4-5, pp. 265-273 (2012)
10. W. Viratyaporn and Richard Lehman, "Effect of nanoparticles on the thermal stability of PMMA nanocomposites prepared by in situ bulk polymerization," *Journal of Thermal Analysis and Calorimetry*, January 2011, Volume 103, Issue 1, pp 267-273 (2011)

Selected Patents:

1. Lehman, Richard; et al., Method of reducing the occurrence of crystalline silica in foamed glass by the introduction of chemical additives, US Patent 9,963,373, Issued May 8, 2018.
2. Hara, Masanori and Lehman, Richard, Inorganic Ionomers Made from Minerals, US Patent 9,765,196 B2, Issued September 19, 2017.
3. Lehman, Richard; et al., Very low crystalline silica foamed glass and methods of using the same, US Patent 9,725,350, Issued August 8, 2017.
4. Jennifer Lynch, Thomas Nosker, Richard Lehman, James D. Idol, Kenneth Van Ness, Richard W. Renfree, Use of recycled plastics for structural building forms, US Patent 9,340,666. Issued May 17, 2016
5. Lehman, Richard; Haines, Steven; Ungerleider, Andrew; Method of reducing the occurrence of crystalline silica in foamed glass by the introduction of chemical additives, US Patent 8,916,486, Issued December 23, 2014
6. Nosker, Thomas J; Lynch, Jennifer K; Lehman, Richard; Idol, James D; Renfree, Richard W; *Methods of increasing toughness of immiscible polymer blends*. US Patent 8,497,324, 2013
7. Lynch, Jennifer K; Nosker, Thomas J; Lehman, Richard; Idol, James D; Van Ness, Kenneth; Renfree, Richard W; *Use of recycled plastics for structural building forms*, US Patent 8,455,588-B2, June 4, 2013.

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8. Nosker, Thomas J; Lehman, Richard; Hamill, Robert; Lynch, Jennifer K; *Method of recycling paints as a component of an immiscible polymer blend*. US Patent 8,436,099, 2013
9. R. L. Lehman and W. Blasland, "*System for and method of batch analysis and optimization for glass manufacturing*," US Patent #7,900,475, May 8, 2011
10. Lynch, Jennifer K; Nosker, Thomas J; Lehman, Richard; Idol, James D; Van Ness, Kenneth; Renfree, Richard W; *Use of recycled plastics for structural building forms*, US Patent 8,008,402, 2011

SYNERGISTIC ACTIVITIES

1. Collaboration with Corning incorporated to bring specialized glass engineering laboratory experience to undergraduates where previously only classroom lecture formats were available. Students travel with Professor Lehman to Corning Incorporated to tour advanced laboratories as well as form hot glass in a studio environment.
2. Collaboration with the Naval Nuclear Laboratories to promote nuclear energy and materials in power applications for the US Navy. Activities have included a two-day embark on board the USS Abraham Lincoln and presentations to university students on engineering opportunities in the Navy.
3. Directing of the Rutgers Polymer Center offers the unique synergism of combining organic and inorganic glass experiments for summer students, ranging from extrusion of thermoplastics to the high temperature melting of inorganic glasses.
4. Technology transfer to external organizations of varied character via a glass seminar focused on the fundamentals of glass technology. This seminar is presented periodically at varied locations.
5. As Department Chair, Professor Lehman was the leader in the recruitment of underrepresented minorities at the high school and freshman college level to enter Rutgers and begin their academic career in materials science and engineering.

COLLABORATORS & OTHER AFFILIATIONS

Collaborators:

Dr. Ron Madler, Dean and Professor, Aerospace Engineering, Embry Riddle Aeronautical University
Dr. Giorgia Giancola, Director, Personal Care Program, TRI Corporation, Princeton, NJ
Prof. Masanori Hara, Department of Chemical and Biochemical Engineering, Rutgers University
Dr. Jennifer Lynch, Department of Mechanical and Aerospace Engineering, Rutgers University
Professor Thomas Nosker, Department of Materials Science and Engineering, Rutgers University
Dr. Arya Tewatia, VP of Engineering, Sicut Corporation, Middlesbrough TS2 1LG, United Kingdom
Marissa Tierno, Manufacturing Engineer at Northrop Grumman

Graduate Advisor: Professor Harold T. Smyth, (Deceased)

Recent Graduate Students:

Alyaa Elsaadany, Estée Lauder Companies Inc.
Arya Tewatia, Sicut Enterprises
Giorgiana Giancola, TRI, Princeton, NJ
Wantinee Viratyaporn, Thai National University, Bangkok, Thailand
Minh Vu, Hanoi University of Science and Technology