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PROFESSIONAL PREPARATION

Rutgers University	Mechanics & Materials Science	PhD	1988
Rutgers University	Mechanics & Materials Science	MS	1983
Georgia Institute of Technology	Mechanical Engineering	BS	1980
Dissertation Professor Jerry Scheinbeim.	"Rate-Dependence of the Glass Transition Pressure on Poly (vinylidene Fluoride) and Poly (methyl Methacrylate),"		1988

APPOINTMENTS

Assistant Research Professor, Materials Science & Engineering, Rutgers University	1988 – Present
AMIPP Advanced Polymer Center	
Center for Plastics Recycling Research	
Center for Packaging Science & Engineering	
Principal Investigator, AMIPP Advanced Polymer Center	2002 – Present
Project Manager, Commingled Plastics Research, CPRR	1998 – 2002
Director, Rutgers University Plastics and Composites Group, CEE	1996 – 1998

RESEARCH INTERESTS

Melt processing of thermoplastics, structure and processing of immiscible polymer blends, fiber and particulate polymer composites. Applications of novel polymer composites in transportation, industrial, and military applications.

SELECTED PUBLICATIONS

1. "Shear exfoliation of graphite into graphene nanoflakes directly within polyetheretherketone and a spectroscopic study of this high modulus, lightweight nanocomposite", Jennifer K Lynch-Branzoi, Ali Asharaf, Arya Tewatia, Meredith Taghon, Jamie Wooding, Justin Hendrix, Bernard H Kear, Thomas J Nosker, Composites Part B: Engineering, May **2020**, Volume 188.
2. "Interfacial Study on the Functionalization of Continuously Exfoliated Graphite in a PA66 Using High Shear Elongational Flow", Justin W. Hendrix, Thomas Nosker, Jennifer Lynch-Branzoi, and Thomas J. Emge, MRS Advances, **2019**.
3. "High Shear Melt-Processing of Polyether-Ether Ketone enhanced Polysulfone Immiscible Polymer Blends". Arya Tewatia, Justin Hendrix, Thomas Nosker, Jennifer Lynch, 2018 Society of Plastics Engineers Annual Technical Conference Proceedings, **2018**.
4. "Evaluation of Exfoliated Graphite to Graphene in Polyamide 66 Using Novel High Shear Elongational Flow", Justin W. Hendrix, Ryan Szeto, Thomas Nosker, Jennifer Lynch-Branzoi, and Thomas J. Emge, Polymers **2018**, 10, 1399; doi:10.3390/polym10121399

5. "Characterization of melt-blended graphene – poly(ether ketone) nanocomposite". Tewatia, A.; Hendrix, J.; Dong, Z.; Taghon, M.; Tse, S.; Chiu, G.; Mayo, W. E.; Kear, B.; Nosker, T.; Lynch, J. Mater. Sci. Eng. B **2017**, 216, 41–49, doi:10.1016/j.mseb.2016.05.009.
6. "Development, Testing and Application of Recycled Plastic Composite sleepers", Thomas J. Nosker & Arya Tewatia, The Journal--Permanent Way Institution, **2017** VOL 135 PART 2, PP. 20-24.
7. "Multi-Scale Carbon (Micro/Nano) Fiber Reinforcement of Polyetheretherketone Using High Shear Melt-Processing", Tewatia, A.; Hendrix, J.; Nosker, T.; Lynch-Branzoi, J. Fibers **2017**, 5, 32, doi:10.3390/fib5030032.
8. "Composition dependence of the mechanical behavior of hydrophobic lignocellulose-reinforced poly (trimethylene) terephthalate composites. Lynch, J. K.; Nosker, T.; Tewatia, In ANTEC 2014 Proceedings, Las Vegas, NV; **2014**; pp. 551–555.
9. "Processing Effects on a Bio-Derived Polymer Matrix Composite", Jennifer K. Lynch, Thomas J. Nosker, Arya Tewatia, Seth Goonetilleke, Kendall Mills, and Keith Luker, Composites Part A **2013**.
10. "World's First Thermoplastic Bridges, John Kim, Vijay Chandra, and Thomas Nosker, KSEA (Korean-American Scientists and Engineers Association) UKC 2011 meeting, August 10-14, Seoul, Korea **2012**

BOOKS

1. "Fiber Reinforced Polymer (FRP) Composites for Infrastructure Applications", Focusing on Innovation, Technology Implementation and Sustainability (Strategies for Sustainability), Chapter 10, pp. 193-218, with Jennifer Lynch and Richard Lampo, Ravi Jain and Luke Lee, ed., Springer, **2012**.
2. Polystyrene/Polyethylene Composite Structural Materials- Volume 1: Railroad Crossties and Their Properties, J.K. Lynch, R.W. Renfree, T.J. Nosker, Rutgers University, New Brunswick, NJ, **2002**

SELECTED PATENTS

1. Polymer-based Railroad Tie having enhanced Ballast Interactions, U.S. Patent #11,613,851 B2 (Filed Oct. 24, 2018, granted March 28, **2023**), Nosker, Thomas J.; Tewatia, Arya S.
2. Compositions and Methods for the Protection of Substrates from Heat Flux and Fire U.S. Patent #11,512,208 (Filed May 30, 2019, granted November 29, **2022**), Nosker; Thomas J., Lynch-Branzoi; Jennifer K., Mazar, Mark, Nosker, Patrick L
3. Use of Graphene-Polymer Composites to improve Barrier Resistance of Polymers to Liquid and Gas Permeants U.S. Patent #11,479,653 B2 (Filed June 25, 2019, granted October 25, **2022**), Lynch-Branzoi, Jennifer K.; Nosker, Thomas J.; Kear, Bernard H.; Hendrix, Justin W.; Chang, Charles T.
4. Covalent Conjugates of Graphene Nanoparticles and Polymer Chains and Composite Materials Therefrom, U.S. Patent #11,479,652 (Filed October 8, 2019, granted October 25, **2022**), Nosker, Thomas J.; Lynch-Branzoi, Jennifer K.; Kear, Bernard H.; Hendrix; Justin W.; Chiu, Gordon
5. Graphene-reinforced polymer matrix composites U.S. Patent #11,225,558 (Filed June 25, 2019, granted January 18, **2022**), Nosker, Thomas J., Lynch-Branzoi, Jennifer K., Kear, Bernard H., Hendrix, Justin W., Chiu, Gordon
6. In-Situ Exfoliation Method to fabricate a graphene-reinforced Polymer Matrix Composite (G-PMC) U.S. Patent # 11,174,366, (Filed April 8, 2019, Granted November 16, **2021**), Thomas J. Nosker, Jennifer K. Lynch, Justin Hendrix, Bernard Kear, Gordon Chiu, Steven Tse
7. In-Situ Exfoliation Method to fabricate a graphene-reinforced Polymer Matrix Composite (G-PMC)

- U.S. Patent # 11,098,175, (Filed February 28, 2018, Granted August 24, **2021**,) Thomas J. Nosker, Jennifer K. Lynch, Justin Hendrix, Bernard Kear, Gordon Chiu, Steven Tse
8. In-Situ Bonding of Carbon Fibers and Nanotubes to Polymer Matrices U.S. Patent # 11,059,945, (Filed July 13, 2021, Granted August 24, **2021**,) Thomas J. Nosker, Jennifer K. Lynch, Justin Hendrix, Bernard Kear, Gordon Chiu, Steven Tse.
 9. Compositions and Methods for the Protection of Substrates from Heat Flux and Fire, U.S. Patent # 10,329,433 (Filed November 10, 2015, Granted January 7, **2020**) Thomas J. Nosker; Jennifer K. Lynch; Mark Mazar; Patrick Nosker.
 10. Composition Derived from Recycled Paint U.S. Patent # 10,526,756 (Filed March 23, 2015, Granted June 25, **2019**,) Nosker, Thomas J.; Jennifer K. Lynch

SELECTED HONORS & AWARDS

1. 2019 Inducted as a Senior Member of the National Academy of Inventors.
2. 2016 Named one of 12 living Rutgers Revolutionaries by Rutgers University, for technical innovations in plastic recycling that has changed lives around the world.
3. 2012 Thomas Alva Edison award from R&D Council of NJ (for fire retardant coatings).
4. 2011 Innovator Award from NJ Inventors Hall of Fame (for several related inventions).
5. 2011 R&D 100 -- Recycled Plastic Bridges voted as one of the top 3 technologies in the world by Editors of R&D Magazine.
6. 2011 R&D 100 Innovation Award.
7. 2011 R&D Magazine Top Mechanical Engineer in the United States.
8. 2003 Excellence in Recycling Award from NJDEP.
9. 2001 Thomas Alva Edison award from R&D Council of NJ (for recycled plastic railway ties).
10. 2000 Civil Engineering Research Foundation Pankow Award Finalist for successfully developing Composite Railroad ties.

LICENSEES & ROYALTIES

Licensees (Currently Active)

1. Since 2023-Legacy Technologies- Manufacturer of fire retardant coatings from silicone polymers and glass. Principal contact: George Beucher.
2. Since 2021- Spec Nano – Manufacturer of Composites made from other layered materials than graphite and plastics. Principal contact: Mike Martin.
3. Since 2018- TLC, Inc. –Manufacturer of Graphene Composite plastics, using graphite and plastics as raw materials. Principal contact: Charles Chang.
4. Since 2007- Sicut, Ltd. –Manufacturer of structural Recycled Plastic composites, Principal contact: Deepak Aggarwal.

Royalties Received by Rutgers University (since 2015):

2015 – 2022 Total = \$1,870,000