



Yiqi Yang to Receive the Olney Medal

Yiqi Yang is the 2021 recipient of the AATCC Olney Medal. Yang is being recognized for his work on the research and development of sustainable, greener textiles. His contributions include the development of new biobased fibers and textile chemicals from agricultural wastes and co-products, and cleaner productions in coloration and finishing. Examples of his pioneering work in the field include 100% protein fibers derived from poultry feathers, as well as stereo-complexed PLA fibers that exhibit excellent hydrolysis resistance during high temperature processing.

A prolific researcher, Yang has spent his career in the Midwest, working with farming communities to take what would be considered unusable waste and transforming it into a clean, sustainable, usable product. Take, for instance, chicken feathers—Yang, along with his collaborators, found a way to transform this large waste product into textile fibers that

can be incorporated into fabrics. Yang and his team were able to perform cross-linking using saccharide aldehydes. By modifying the molecular structure and concentration of these aldehydes, they created keratin fibers that were found to be stronger than any other keratin-based fibers. Not only do the keratin fibers from feathers show great promise in holding their strength in fabric when immersed in water or when dry, they also “have excellent dyeability and colorfastness with acid dyes.”¹

Yang’s research has also uncovered a way to create plastics that are biodegradable through plant-based alternatives found in the textiles and materials industry. Yang and his lab began to collaborate with researchers from Jiangnan University in China in the early 2000s on this concept. Through their research, they discovered that polylactic acid or polylactide, found in cornstarch and other plants, is a more environmentally friendly alternative to petroleum-based plastics. By heating the plastic with polylactide to a higher degree and allowing it to cool slowly, the researchers learned that the plastic was more durable in hot or cold temperatures, making it more suitable for the textile and materials industry.²

Throughout his career, Yang has worked with his students and collaborators to find ways to create a more “sustainable and environmentally responsible textile industry.” His research in agricultural products and co-products have had far-reaching impacts locally, nationally, and internationally.

Career

Yang earned an MS in Textile Chemical Engineering from China Textile University (Donghua University) in 1984, and a PhD in Textile Science from Purdue University in 1991. Soon after receiving his PhD, he began his career as an assistant professor at the University of Illinois, Urbana-Champaign. After four years, he joined the Institute of Textile Technology (ITT) as an associate professor. Two years later, he joined Monsanto and worked for one year as a senior research specialist before going back to ITT in 1997. He progressed at ITT to professor and director in the Department of Chemical, Energy, and Environment before moving to the University of Nebraska-Lincoln in 2001, where he continues his research as the Distinguished Charles Bessey Professor in the Department of Textiles, Merchandising, and Fashion Design and the Department of Biological Systems Engineering.

Achievements and Awards

Yang has written 285 refereed journal articles and numerous refereed conference and proceedings papers. He authored one book, edited two books, and wrote numerous book chapters. He has eight patents and several patent applications. He has over 190 national and international news interviews and media reports.

Education Awards

In 2018, Yang was recognized with the “Fashion Impact Award” as Educator of the Year from the Fashion Institute Midwest. In 2017, Yang received a Certificate of Recognition for Contributions to Students. This award was organized by the Division of Student Affairs and co-hosted by the University of Nebraska-Lincoln Parents Association and the University Teaching Council. Students and parents nominated teachers who had “made a significant contribution to [students’] lives while at the university.” In 2007, Yang was recognized with the Faculty Student Mentoring Award of the College of Education and Human Science.

Research Awards

In 2011, Yang received the Research Award from Gamma Sigma Delta (The Honor Society of Agriculture) Nebraska Chapter. Yang was recognized with the Charles Bessey University Distinguished Professorship in 2007; it has been renewed in 2012, 2017, and 2021.

In 2007, Yang was also recognized with the “Big 12 Rising Star Award” that is presented by the Big 12 Center for Economic Development, Innovation, and Commercialization (CEDIC) at the Big 12 CEDIC Innovation and Capital Formation Conference held in Kansas City, MO, USA. Only one faculty member of each of the Big 12 Universities was awarded this honor.

AATCC Service

A member of AATCC since 1990, Yang chairs the AATCC Foundation Student Research Support Grant Program and Review Board and has handled this annual program since 2005. He also has served as the faculty advisor of the AATCC Student Chapter at the University of Nebraska-Lincoln since 2003.

Yang served as a member of the following AATCC committees: Publications (2017-2021); Henry E. Millson Award for Invention Committee (2013-2019); *AATCC Journal of Research (AJOR)* e-journal

task force committee (2013) and Associate Editor (2013-present); Chemical Applications Interest Group At-Large Member (2011-2012); member of the AATCC Board of Directors (2010-2012); judge of the Herman and Myrtle Goldstein Student Paper Competition (2004); and the AATCC Education Advisory Board (2003-present).

Locally, Yang was active in the AATCC Midwest Section, serving as Secretary (2003-2004), Vice-Chair (2004-2005) and Chair (2005-2011).

The Olney Medal

Established in 1944 in honor of Louis Atwell Olney, the founder and first president of AATCC, the Olney Medal Award recognizes outstanding achievement in textile or polymer chemistry or other fields of chemistry of major importance to textile science. The award consists of a gold medal, a scroll, and an honorarium.

Presentation of the Medal each year is a highlight of AATCC Textile Discovery Summit. This year, the Summit will be held from October 4-6, 2022, at the Hilton University Place in Charlotte, NC, USA. The Association will present the Olney Medal during the Awards Luncheon on October 6, 2022.

Yang will deliver the traditional Olney Medal Address on October 6 at 8:00 am. The title of his talk is “A Small Step Towards a More Sustainable, Responsible, and Profitable Textile Industry.”

Reference

1. Schrage, Scott, University of Nebraska-Lincoln, “Process Improves Strength, Fiber of Color-Based Fibers,” 12 January 2022, www.phys.org/news/2022-01-strength-feather-based-fibers.html.
2. University of Nebraska-Lincoln, “Mass Production of Biodegradable Plastic,” *ScienceDaily*, 31 August 2017. www.sciencedaily.com/releases/2017/08/170831091454.htm.

www.aatcc.org/olney

