

BLUEPRINT FOR CHANGE: FIVE PRIORITIES

SCIENCE X TECHNOLOGY X FASHION

**Meeting Report From
The Change Fashion Forum
June 27, 2018**



**The New York
Academy of Sciences**

Forward

On June 27, 2018, the New York Academy of Sciences gathered 120 leaders from every constituency in the fashion industry — investors, innovators, industry executives, influencers, policy experts, academics and scientists — to test the thesis of industry and academic experts that the world’s second most polluting industry cannot continue doing business as usual. The unprecedented workshop wasn’t another of the many important networking conferences that discuss problems but do not attempt to drive change. Instead, it was designed to frame an initiative creating a science-based agenda to develop solutions and implement changes to sustainability practices in the global apparel industry.

To accomplish this, months of effort had set the table and the participants represented not only cross-sectional expertise but many of the key stakeholders such as PVH, Eileen Fisher, Prabal Gurung, Dupont, FIT, Aalto University, and many others (see Appendix 2). Scientists and industry experts serving as workshop leads had refined their approaches and came ready to guide the discussions.

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The world’s second most polluting industry cannot continue doing business as usual

By the end of the intense day, the participants had identified two potentially high-impact areas that science and technology could address directly. These include the environmental impact of elastane (Spandex) and green alternatives to existing finishing processes. They had also begun to outline three priority areas worthy of intense exploration as potential collective action initiatives that could transform the industry at scale. These were the facilitation of the creation of closed-loop material systems, modeling “the visible factory” to support eco-transparency, and removing technical barriers to clothing as a service. In the

pages that follow, we provide the background, the approach, and the details of the five areas that were identified.

Now we need you — those who participated in the workshops, and those who are just learning about this effort. Because the Academy doesn’t just create talkfests, it looks to drive meaningful change through partnership. As you will see from this report, there was a consensus among the gathered participants that a full-blown effort needs to be undertaken. If you aren’t already among the leaders committed to working collectively on these challenges, join us. We will need all the expert help and partnerships available to ensure a sustainable planet by 2030.

Ellis Rubinstein, *President and CEO*

Jennifer L. Costley, *PhD, Director, Physical Sciences, Sustainability & Engineering*

The New York Academy of Sciences

Sustainability and the Global Apparel Industry

Global fashion presents a perfect paradox: A world self-defined by soft concepts of image and creative vision that rests upon the hard materiality of electricity, chemicals, raw materials and factory labor input. A massive economic engine heavily invested in selling brand intangibles and personal wish fulfilment, but built on the grit of ferocious competition, industrial speed and scale, and closely watched costs. An industry whose vitality derives from perceptions of novelty and innovation, powered by business practices rooted firmly in the past.

Depending on perspective, managing these contradictions between image and hard reality has been either the industry's special gift, or its curse. Now, fashion faces a steep additional challenge in coming to grips with its outsized, negative environmental impact. The fashion industry accounts for \$3 trillion in annual economic activity and is the world's second-largest global employer, with 300 million workers. It is also second largest global polluter of freshwater resources. It produces 13 billion tons of greenhouse gases per year, more than the oil industry, and in some parts of the world, it accounts for 50 percent of landfill content.

The Current, Mixed State

While governments, multi-lateral organizations, NGOs, scientific communities — and many in the fashion itself — have raised increasingly urgent alarms about these facts, the industry faces deep structural impediments to change. The global apparel sector is made up of tens of thousands of private-sector entities, often operating with huge differences in sophistication, driven by narrow financial interests, forced to contend with differences in national laws or regulatory codes and limited access to only small slices of the data needed to effectively run a sustainability program. Unlike global industries such as consumer electronics or automobiles, fashion is often the product of these independent entities. As such it cannot be corralled by the example or mandate of a few global leaders, to impose best sustainability practice from above.

Resistance comes from all quarters: Governments competing for inbound investment look to maintain their cost competitiveness when promulgating or enforcing environment policies. Brands ask themselves if the costs of best environmental practices can be passed through to customers, or whether sustainability investment will protect them from the reputational or compliance risks associated with negative environmental publicity or regulatory sanction.

The typical fashion consumer is also a point of resistance, unaware or in denial about the

connection between a desired purchase and its attendant environmental cost. Consider that ubiquitous modern garment, the pair of blue jeans. Whether the consumer is purchasing jeans for basic utility and modesty and most concerned by cost, or spending hundreds of dollars for a subtle distinctive signifier of status, taste and identity, the focus is on the immediate item at hand. The consumer is typically not aware that pair of blue jeans uses a global average 3,781 liters of water during its lifecycle, between the growing of cotton, garment fabrication, packaging and washing. He or she is also unaware that worldwide consumption of apparel has grown by orders of magnitude since just the year 2000.

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...truly fundamental change will originate from the consumers. As the new generation continues to push for more information on where garments are made and how the current state of fashion impacts the planet, the market will be forced to adapt to their evolving needs and wants.

Miroslava Duma, CEO and Founder, Future Tech Lab

Creating a New Baseline of Perception

Against such a sobering background, participants - including investors, innovators, industry executives, influencers, policy experts, academics and scientists - gathered at the Academy's June 27 Change Fashion Forum and Workshop to share perspectives, learn about new developments, and establish a common baseline of perception and urgency. At general plenary sessions, they recapped or updated dimensions of the problem. They also learned of noteworthy responses from around the world: the recent development of pioneering materials that mimic natural characteristics with neutral environmental impact; nationally-sponsored databases that monitor factory-specific compliance with sustainability practices in real time; and examples of public-private manufacturing partnerships that have dramatically decreased consumption of water resources.

Workshop participants joined one of five specialized working groups focused on an operational aspect of the global apparel industry: Materials, Supply Chain, Retail & Consumer, Manufacturing, and Closing the Loop (sustainable business models). Each group was tasked with defining its topic, and then completing a three-part assignment:

- 1) Assess the current state of industry-wide sustainability practices within the topic area;
- 2) Envision and articulate an ideal state of sustainable practice;
- 3) Recommend up to three priority areas as areas for further attention and action. The findings of these working groups formed the basis of the recommendations in this Report.

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You are in the right ecosystem to make an impactful change in the fashion industry... The scientific revolution can be part of the solution for this industry.

Yuly fuentes-medel, Descience

Two sets of questions cut across all the workshops. The first clustered around cost: Can the global fashion industry ever move to sustainable production, distribution, marketing and consumption models without frank discussions of associated cost? How are the added costs associated with responsible sustainability practices to be measured, distributed and carried? What is the relative willingness to bear those costs, among brands, manufacturers, distributors and consumers? Is it realistic to limit sustainable solutions to only those that are cost-neutral?

The second set of questions probed where best to place hopes for solutions: upon disruptive new technologies that might deliver breakthrough results, or upon more modest approaches, perhaps borrowed from other industries, that could incrementally raise the global baseline of acceptable sustainable practices.

Blueprint for Change: Five Priorities

Working through dozens of ideas, the participants at Change Fashion indicated strong interest in sustainability solutions that are actionable, acceptably disruptive, and scalable. The Academy opened the Forum and Workshop with its own objective: with a goal to create defined list of fashion sustainability priorities for further action. Participating in the Forum and Workshop and reviewing the results of the working group sessions, ideas were screened that aligned with the Academy's strengths in advancing scientific research and innovation and our commitment to solutions that benefit society.

This report identifies five priorities areas for Academy activity, a living blueprint that will guide our discussions and funding proposals for collective action toward sustainability in fashion. Each is summarized below, with more detailed treatment in Appendix 1 of this report:



The industrial ecology approach, including waste beyond the fashion industry, is fresh.

**Lynda Grose, Chair,
Fashion Design, California
College of the Arts**

Area #1: Create closed-loop material systems

The production methods of modern global apparel are prodigiously wasteful – of materials and the agricultural resources that produce them. Our goal is to facilitate the creation of closed-loop material systems based on regenerative principles, utilizing as much waste as possible. In this focus area, the Academy's immediate next steps are to raise support for, fund and launch a focused working group that includes existing experts, waste industry participants, and additional value chain stakeholders. Over a period of three years, these stakeholders would attempt to correlate waste with the cost of materials in the industry, map waste flows, and identify scalable systems to repurpose waste.

Area #2: Address the environmental impact of elastane (Spandex)

Elastane (Spandex) has been increasingly successful in fabric blends since its commercial introduction in 1962. Unfortunately, it cannot be either recycled or separated from recyclable fibers in discarded garments. Our proposed path of action is two-fold: First, to raise funding designated to support a three year effort to facilitate a series of scientific and technical challenges and workshops to identify one or more replacements for spandex that do not exhibit the binding properties that prevent recycling. Second, to explore improved methods for recycling elastane, by funding and convening small group of experts to develop a scientific roadmap.

Focus Area #3: Find green alternatives to existing finishing processes

Fluorocarbon-based chemicals that render natural fibers flame retardant or waterproof, generate toxic by-products. While some industry players have eliminated the use of selected chemical agents, such as C8 long-chain durable water repellents, effective replacements have been elusive. Our objective is to facilitate development of equally effective eco-friendly alternatives. The Academy proposes to create a knowledge platform that will assess existing technologies and scalable alternatives, pair scientist innovators with manufacturers, and identify development-funding sources.

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The technologies of dyeing, washing, etc., offer a space for collaboration that will feel non-competitive yet ambitious.

**Steve Evans, PhD,
University of Cambridge**

Focus Area #4: Use “the visible factory” to support eco-transparency

Environmentally responsible sourcing in the global fashion system is hindered by disparate standards of transparency, lack of real-time data, and uneven enforcement at the factory level. Our ideal state acknowledges the complexity of supply chains that extend across continents and takes supply-chain mapping to a new level, with the factory as the fundamental building block. It makes the large pools of available data on factories readily visible to all stakeholders and elevates sustainability to the same level of procurement-criteria importance as price, quality and dependability of delivery. Therefore, our objective is to raise support for the creation of a consistent, globally applicable transparency platform using Focus Areas #1 - #3 as test cases.

Focus Area #5: Removing technical barriers to clothing as a service.

Since 2000, the pace of fashion cycles has accelerated, exacerbating an already wasteful “produce, consume, dispose” ethos among manufacturers, brands and consumers. New thinking envisions replacing the current linear system with fashion business models built on quality, durability and extended use. In this arena, the Academy will seek funding to develop a focused concept and to execute innovation challenges, new research, and new technical solutions to address current reuse barriers.

Conclusion

The Change Fashion initiative promises a significant step forward in raising awareness among important apparel industry stakeholder interests, defining what an ideal, sustainable state of fashion might look like, and forging consensus about a practical, science-based roadmap for progress. But it also hopes to go way beyond raising awareness. If the industry's stakeholders truly believe the current practice is unsustainable, they need to rally around an initiative that employs collective action in the five areas our industry experts identified.



I truly believe collective action is the sole solution to the impacts of the fashion industry on the environment — consumer purchasing patterns, supply chains and production methods should change. Science must be paving the way for these changes...

Miroslava Duma, CEO and Founder, Future Tech Lab

The Academy, working closely with the Chapman Perelman Foundation and others, and drawing upon the Change Fashion Scientific Advisory Group, will continue to introduce interested parties to each other, share scientific insight and recommended solutions among interested stakeholders, mobilize public awareness, advocate for policy change, funding, and the agenda for action outlined in this report. But most critically, the Academy's best use, as a recognized neutral entity with enormous resources in scientific and technical talent, is to facilitate proof-of-concept efforts that can be scaled up. To do this, the industry itself, as well as key foundations and philanthropists, will need to step up to this crucial global challenge.

APPENDIX 1: Blueprint for Change/ Five Priorities for the Industry

Many participants at the Change Fashion Forum and Workshop agree that the global fashion industry's sustainability is in the midst of "a great turning." The challenge is not simply innovative point solutions but total systems change and thinking, that defines innovation and sustainability as complementary, intersecting drivers.

The Academy has distilled the findings of the Change Fashion Forum and Workshop to create a defined list of priorities for further attention, action and advocacy. Each focus area presents opportunities for science and technology-based solutions that are pragmatic, scalable, achievable within acceptable timeframes, and beneficial to society. Each leverages the Academy's enormous network, its reputation as a neutral player, and strengths in research, education and policy.

Together, the five areas of focus stake out the role of science- and evidence-based decision making, affirm science-based standards and targets, and reflect the Academy's deep belief that with enough focus, creativity and resources, science can solve the world's important problems.

Focus Area #1: Create closed-loop material systems

Summary:

The production methods of modern global apparel are prodigiously wasteful – of materials and the agricultural resources that produce them. Within the industry, many experts suggest the easily-reused waste solutions have already been captured. At the next frontier, as a reflection of true “circular economy thinking,” the chemicals used in apparel manufacturing will be merchandised to other industries. Our goal is creation of closed-loop material systems based on regenerative principles, utilizing as much waste as possible. In this focus area, the Academy’s immediate next steps are to fund and launch a focused working group that includes existing experts, waste industry participants, and additional value chain stakeholders.

Context:

Existing closed-loop programs in the industry are fragmented, small or nonexistent, hindered in part by a lack of sorting technologies. The labor-intensive networks of large-scale clothing sorters, typically charitable organizations, remain separate from commercial-sector actors. Large-scale commercial waste processors have not been a part of the closed-loop conversation. In this arena of activity, the current state of the global fashion system presents a ‘tabula rasa’ for new, research-based “industrial ecology” perspectives: There are pressing needs to demythologize and precisely correlate waste-minimization efforts to the cost of materials; to map waste flows; and to consider redirection of reprocessed fashion waste product to end-users outside the industry.

Key Actions:

- Divert waste from fashion system.
- Use waste from all sources, including agriculture and food.

Success Metrics:

- Elimination of waste, and scalable systems to repurpose waste raw materials into new finished materials.

Next Steps:

- Fund and launch focused working group including existing experts plus waste industry and additional value chain stakeholders.

Focus Area #2: Address the environmental impact of elastane (spandex)

Summary:

Elastane (spandex) has been increasingly successful in fabric blends since its commercial introduction in 1962. Unfortunately, it cannot be either recycled or separated from recyclable fibers in discarded garments. Our proposed path of action is two-fold: First, to help develop a replacement for spandex that does not exhibit the binding properties that prevent recycling, by funding innovation challenges. Second, to find improved methods for recycling elastane, by funding and convening small group of experts to develop a scientific roadmap.

Context:

The scale of the dangers posed by elastane are not well understood within the fashion industry, even by 'sustainable' designer and clothing brands. Currently, the research base on which hopes for elastane alternatives or new recycling efforts exist contains gaps. Some experts consider a scientific assessment of the nutrient value to soil of "biodegradable materials" – its component elements, such as carbon, cellulose, phosphorus, nitrogen – a useful, first-stage research foundation. Additional areas for inquiry include study of the optimum infrastructure and conditions for biodegradation.

Focus #2a: Find recyclable replacements

Description:

Develop a replacement for spandex that does not exhibit the difficulties with component separation that prevent recycling of garments that include spandex.

Key Actions:

Consider different approaches (through synthetic biology, material science).

Success Metrics:

- Eliminating non-degradable fiber and be able to re-use cotton/natural fibers.

- Affordability: Elastane substitutes should cost the same or less.
- Feasible and scalable.

Next Steps:

- Fund and execute innovation challenges.

Focus #2b: Improved elastane recycling

Description:

Develop improved, cost-effective methods for removing Spandex from fabric blends to facilitate recycling.

Key Actions:

- Review existing research and map gaps to identify critical steps.

Success Metrics:

- Eliminating non-degradable fiber and be able to re-use cotton/natural fibers.
- Recycling methodologies are cost-neutral.
- Feasible and scalable.

Next Steps:

- Fund and convene small group of experts to develop a scientific roadmap for Spandex separation, identifying key scientific roadblocks and outlining a concrete approach for discovery and development.

Focus Area #3: Find green alternatives to existing finishing processes

Summary:

Fluorocarbon-based chemicals that render natural fibers flame retardant or waterproof, generate toxic by-products. While some industry players have eliminated the use of selected chemical agents, such as C8 long-chain durable water repellents, effective replacements have been elusive. Our objective is development of effective eco-friendly alternatives. We propose the creation a knowledge platform that will assess existing technologies and scalable alternatives, pair scientist innovators with manufacturers, and identify funding sources for development.

Context:

The treatment of natural fibers is one part of a larger problem that also includes waterproofing of synthetic fibers and blended fabrics by a burgeoning outdoor apparel sector. The drive for regulatory compliance and competitive advantage has created pockets of proprietary research and knowledge. This is pressing need for knowledge platforms that will facilitate the sharing of share non-proprietary solutions, and for expanded research of fabrics, yarns, fibers and even component molecular structures that could enable coatings and finishings to be eliminated entirely.

Key Actions:

- Review existing innovations and technologies.
- Convening forum and knowledge platform to provide “match-making” between scientists/innovators and manufacturers.

Success Metrics:

- Identify replacements for harmful chemicals likely to be banned in next few years.

Next Steps:

- Fund and convene a small group of experts to develop proposal for convening forum and knowledge platform.
- Identify sources of funding to bring existing solutions that are deemed promising to scale.

Focus Area #4: Use 'the visible factory' to support eco-transparency

Summary:

Environmentally responsible sourcing in the global fashion system is hindered by disparate standards of transparency, lack of real-time data, and uneven enforcement at the factory level. Our ideal state acknowledges the complexity of supply chains that extend across continents and takes supply-chain mapping to a new level, with the factory as the fundamental building block. It makes the large pools of available data on factories readily visible to all stakeholders and elevates sustainability to the same level of procurement-criteria importance as price, quality and dependability of delivery.

Context:

Sustainable-practices transparency has been the major environmental focus of the fashion industry for the past three decades but remains a patchwork of efforts and results. Selected global brands have launched major initiatives to map the eco-sensitivity of entire value chains, in cooperation with their suppliers and partners. And the Chinese government, working in partnership with a local NGO, has built an impressive national database of sustainability compliance at more than 10,000 apparel-related factories, as part of its national commitment to environmental leadership. Industry resistance to such efforts remains deep, with large pockets of opacity, corruption and "under the radar" subcontracting still prevalent, particularly in emerging economies. With support, industry advocacy groups may yet play a role in coordinating transparency efforts between brands and across the industry.

Key actions:

- Distill the taxonomy of data for what is a good factory.
- Identify data sources at the factory level.
- Develop "white list" of raw materials, components and processes.
- Provide dashboard to measure relative success.

Success metrics:

- More transparency, knowledge and sustainable practices.
- Better understanding of gaps in the data.
- User-friendly information.

Next steps:

NYAS will support the creation of a consistent, globally applicable transparency concept,

working with materials, manufacturing and supply chain experts, and building out data taxonomies and identifying data sources. The initial focus will be on the data necessary for Focus Areas #1, #2, and #3, both as a keystone platform to support these projects and a proof-of-concept for the value of a larger effort.

Focus Area #5: Reduce technical barriers to clothing as a service

Summary:

The fashion industry has focused to date on importance of technology in the supply chain, with less attention on social implications of sustainable business models. In this arena, innovation shifts from new technologies to new business models, which consider replacing customer relationships founded upon outright per-item purchases with subscription or rental relationships. New thinking would replacing the current linear system with fashion production, distribution and consumption models built on quality, durability and extended use. In this arena, the Academy will seek funding to develop a focused concept and to execute innovation challenges, new research, and new technical solutions to current reuse barriers.

Context:

The emergence of “fast fashion” the late 1990s and early 2000s has effectively shifted the concept of seasonality in the global fashion system from two seasons a year – spring/summer and fall/winter – to multiple, shorter “microseasons.” As manufacturers, brands, and retailers have adopted the model, promising novel design and affordability, consumers have been conditioned to think in terms of disposability in their purchase patterns. Consumer expectations, strongly conditioned to define value in fashion in terms of ‘the new,’ are a major incumbency hurdle to new business models. The successful launch and building of apparel leasing systems will demand fundamental shifts in brand valuation, marketing and retailing, which the fashion industry has only begun to consider.

Key actions:

- Understand existing business model and impact of limitations.
- Characterize types of issues (wearing, pilling, shape change, shrinkage, etc.).
- Research and propose solutions.

Success Metrics:

- Viable solutions adopted by industry.

Next Steps:

- Seek funding to develop a focused concept.

APPENDIX 2: Attendees - Change Fashion Forum and Workshop, June 27, 2018

Working Group Chairs

Session A: Materials

- **Pirjo Kääriäinen, Professor**, Aalto University, School of Arts, Design and Architecture & School of Chemical Engineering
- **Claudia Richardson**, PhD, Materials Innovation, Patagonia
- **Amanda Johnston**, Associate Lecturer, Sustainable Materials Research and Curation, London College of Fashion; Consultant, Sustainable Angle

Session B: Production/Manufacturing

- **Katarina Rimarcikova**, Senior Lecturer and Subject Leader, London College of Fashion; Co-Founder, Align Creative Studios; Head of Design, Body Agent
- **Scott Echols**, Programme Director ZDHC Foundation
- **Laura Hall**, Partner, Collective Growth Partners

Session C: Retail and Consumer

- **Nina Farran**, CEO, Fashionkind
- **Mark Sumner**, EngD, Lecturer in Sustainability, Retail & Fashion, School of Design, University of Leeds

Session D: Supply Chain

- **Hamid Rashid**, Chief, Global Economic Monitoring, UN DESA
- **Martin Smith**, PhD, COO, Katsu TechStyle

Session E: Closing the Loop (Re+Upcycling)

- **Natasha Franck**, Founder, EON Group
- **Karen K. Leonas**, PhD, Professor, Textile and Apparel, Technology and Management, North Carolina State University

Participants

- **Donnovan Andrews**, Overture Global
- **Inka Apter**, Eileen Fisher
- **Rick Barber**, SAP
- **Adam Baruchowitz**, Wearable Collections
- **Joseph Bavuso**, Zegar Family Foundation
- **Bjorn Bengtsson**, The New School
- **Alisha Bhagat**, Forum for the Future
- **Leonardo Bonanni**, Sourcemap
- **David Breslauer**, Bolt Threads
- **Karen Burke**
- **Anna Chapman**, Chapman Perelman Foundation
- **Gigi Cobos**, Katsu New York
- **Alyssa Cohen**, 3.1 Phillip Lim
- **Simon Collins**, WeDesign
- **Lauren Cooper**, Prabal Gurung
- **Laura Cosgrave**, PVH
- **Addavail Coslett**, MacAndrews & Forbes
- **Roberto Crivello**, Federation Design Studio
- **Cynthia Cummis**, World Resources Institute
- **Caroline Daniels**, Babson College
- **Raphael Deau**, Landscape Finance Lab
- **Sonali Diddi**, Colorado State University
- **Lisa Diegel**, Marc Jacobs
- **Caitlin DiStefano**, Prabal Gurung
- **Miroslava Duma**, Future Tech Lab
- **Steve Evans**, University of Cambridge
- **Yuly Fuentes-Medel**, Descience
- **Julianne Gauron**, DeScience
- **Devin Gilmartin**, Querencia Studio
- **Susanne Goetz**, Fashion Institute of Technology
- **Catherina Gomes**, Undercover Colors
- **Valentina Gomez**, Fashion Institute of Technology
- **Autumn Greco**, Stanford University
- **Tracey A. Greenstein**, WWD
- **Linda Greer**, NRDC
- **Tim Greiner**, Pure Strategies
- **Lynda Grose**, California College of the Arts
- **Jean-Charles Guinot**, Ellen MacArthur Foundation
- **Simardev Gulati**, Dropel Fabrics
- **Annie Gullingsrud**, Cradle to Cradle Products Innovation Institute
- **Laura Hall**, Collective Growth Partners
- **Amy Hall**, Eileen Fisher
- **Karl Haller**, IBM
- **Chikako Hanaoka**, Katsu New York
- **Michael Harari**, ColorZen
- **Veronika Harbick**, Thursday Finest
- **Leslie Harwell**, Alante Capital
- **Luke Haverhals**, Natural Fiber Welding
- **Sylvia Heisel**, Heisel
- **Claudia Henninger**, The University of Manchester
- **Renée Henze**, DuPont

Participants (continued)

- **Jennifer Higgins**, ColorZen
- **Caroline Holmes**, Walmart
- **Connie Holst**
- **Hikari Izumi**, Katsu New York
- **Gangadhar Jogikalmath**, QED Labs, Inc.
- **Cosette Joyner Armstrong**, Oklahoma State University
- **Morgana Kattermann**, Fashion Institute of Technology
- **Nomi Kleinman**, Fashion Institute of Technology
- **Lewis Kruger**, Stroock, Stroock, and Lavan
- **Laura Kruger**, Hebrew Union College - Jewish Institute of Religion
- **Chui Lee**, Fashion Institute of Technology
- **Leah Lefco**, BPCM Worldwide
- **Lilian Liu**, United Nations Global Compact
- **Giana Manganaro**, Bulletin Podcast
- **Tegan Maxey**, Querencia Studio
- **William McRaith**, PVH
- **Farah Mirboboeva**, Future Tech Lab
- **Samuel Moskowitz**
- **Flavio Murarotto**, Zeitgeist Group
- **Matt Nelson**, Natural Fiber Welding
- **Kirsi Niinimaki**, Aalto University
- **Mike Noel**, Futerra
- **Amanda J. Parkes**, Future Tech Lab
- **Kari Parviainen**
- **Alicia Perez-Porro**, National Museum of Natural History
- **Carrie Phillips**, BPCM Worldwide
- **Alejandra Pintado**
- **Viviana Pintado Gallardo**
- **Leela Ramnath**, Tau Investment
- **Francesca Reitmeyer**, Fashionkind
- **Elizabeth Rich**, Forum for the Future US
- **Rachel Richards**, Kenneth Cole
- **Timo Rissanen**, The New School
- **William Rossi**, Everlane
- **Naomi Rougeau**, Elle Magazine
- **Matthew Rusk**, Swarovski
- **Soichiro Saita**, Alliance Forum Foundation
- **Elizabeth Salim**, Piagui Grupo
- **Jennifer Sanduski**, Tau Investment
- **Myriam Sbeiti**, NYU - Polytechnic School of Engineering
- **Theanne Schiros**, Fashion Institute of Technology
- **Jessica Schreiber**, Fab Scrap
- **Patrick Shaner**, H&M
- **Catherine Shimony**, Global Goods Partners
- **Suga Shiohira**, Katsu New York
- **Jeffrey Silberman**, Fashion Institute of Technology
- **Asta Skocir**, Fashion Institute of Technology
- **Annabelle Stamm**, Quantis International
- **Melanie Steiner**, PVH
- **Mark Sumner**, University of Leeds
- **Mark Andrew Sunderland**, Thomas Jefferson University
- **Helaine Suval**, Collective Growth Partners
- **Joao Talocchi**, Purpose PBC
- **Erika Tompkins**, Kenneth Cole Productions NYC
- **Jackie Trebilcock**, New York Fashion Tech Labs
- **Michelle Tulac**, Ideo New York
- **Kate Twist**, Xcel Brands
- **Chris van Bergen**, Build A Nest
- **Barbara Vogt**, Sotheby's International Realty
- **Russell Wallack**, Terra Genesis International
- **Charles Ward**, Writer
- **Shira Wheeler**, Oddo Body
- **Alexandra Wynne**, Alexandra Wynne Designs
- **Lei (Gloria) Yao**, HKRITA
- **Lauren Yarmuth**, Ideo New York
- **Jonathan Zornow**, Sewbo

For 200 years — since 1817 — the Academy has brought together extraordinary people working at the frontiers of discovery. Among the oldest scientific organizations in the United States, it has become not only an enduring cultural institution in New York, but also one of the most significant organizations in the global scientific community.

