CTR Workshop on Translational Research and Technology Innovations for PFAS Decontaminations

sponsored by National Science Foundation ART (Accelerating Research Translation) Program at NJIT and National Academy of Inventor (NAI) – NJIT Chapter

April 24, 2025 | 9:00 AM – 4:00 PM | Atrium, Campus Center

SUMMARY OF DISCUSSION

NJIT | CTR Center for Translational Research New Jersey Institute of Technology

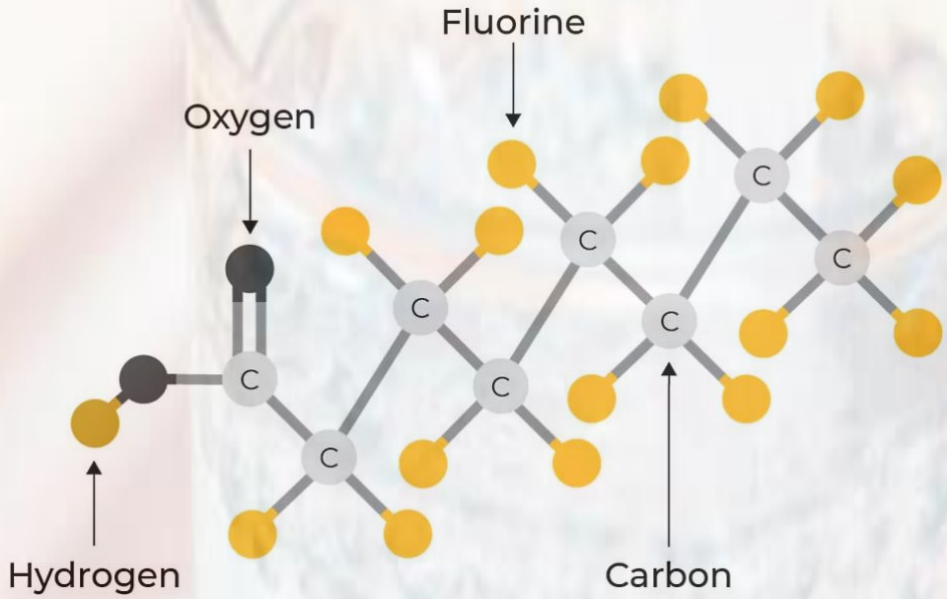
NSF ART ACCELERATING RESEARCH TRANSLATION

NJIT New Jersey Institute of Technology

Chapter of the National Academy of Inventors

PFAS

Per- and polyfluoroalkyl substances



NJIT

CiR

Center for Translational Research
New Jersey Institute of Technology

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Sponsored by
NSF ART (Accelerating Research Translation) Program at NJIT
National Academy of Inventor (NAI) – NJIT Chapter

Co-organizers and Co-Chairs
Atam Dhawan, Senior Vice Provost for Research, NJIT; Executive Director – Center for Translational Research
Nick DeNichilo, Vice Co-Chair, NJIT Board of Trustees; Former President & CEO at Mott MacDonald – North America (retired)
Carol Walczyk, Vice President – Engineering, Veolia North America; Vice President – American Water Works Association

Date and Venue: April 24, 2025, 9.00 AM – 4.00 PM; Campus Center Atrium

Workshop Agenda

9.00 AM – 9.30 AM: Registration and Meet & Greet Networking with Breakfast

9.30 AM – 10.00 AM: Welcome Remarks and Program Outline
Atam Dhawan, Senior Vice Provost and Executive Director – CTR; Workshop Co-Chair
Nick DeNichilo, Vice Co-Chair, NJIT Board of Trustees, Workshop Co-Chair
Teik Lim, President, New Jersey Institute of Technology

10.00 AM – 10.10 AM: Opening Remarks
NJ State Senator Paul Sarlo

10.10 AM – 10.15 AM: Assemblywoman Lisa Swain

10.15 AM – 10.30 AM: Distinguished Keynote Session: Introductions and Remarks
Moderator: Nick DeNichilo

10.30 AM - 11.00 AM: Distinguished Keynote Presentation -1: Government/Agency Perspective
Katrina Angarone, Chief Strategy Officer, New Jersey Department of Environmental Protection

11.00 AM -11.30 AM: Distinguished Keynote Presentation: Industry Perspective
Chris Low, Chief Technology Officer, Veolia North America

11.30 AM - 12.30 PM: Distinguished Panel Session: Translational Research in PFAS Decontamination Technologies – Academic Translational Research Perspective
Wen Zhang, Professor, Civil and Environmental Engineering, NJIT
Arjun Venkatesan, Associate Professor, Civil and Environmental Engineering, NJIT
Zhiming Zhang, Assistant Professor, Civil and Environmental Engineering, Rowan University
Dibyendu "Dibs" Sarkar, Professor of Environmental Engineering, Founding Director, Stevens Center for Sustainability, Civil, Environmental and Ocean Engineering, Stevens Institute of Technology
Craig Arnold, Vice Dean of Innovation, Office of Innovation, Princeton University
Lisa Rodenburg, Professor, Department of Environmental Sciences, Rutgers University

Moderator: Atam Dhawan

12.30 PM - 1.00 PM: Lunch with Experts and Networking

1.00 PM - 2.00 PM:	Distinguished Panel Session: Translational Research in PFAS Decontamination Technologies – Industry Technology Translation Perspective Carol Walczyk, Vice President – Engineering, Veolia North America Jason Hnatko, Engineering Leader, Allonnia Rick Gillespie, Chief Commercial Officer, Revive Environmental Lauren Weinrich, Director, Research & Development, American Water Brent Alspach, Director of Applied Research, Arcadis Moderator: Carol Walczyk
2.00 PM – 2.30 PM:	Open Forum with Elected Officials and Community Leaders
2.30 PM - 4.00 PM:	Industry-University-Community Showcase and Reception: Technology Innovations in PFAS Decontamination: Showcase Presenters

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Summary of Discussion

1. Welcome Remarks Session

Atam Dhawan, Senior Vice Provost for Research at NJIT and Executive Director of the NSF-funded Center for Translational Research (CTR), welcomed attendees to a workshop focused on **PFAS decontamination**—a pressing global environmental and public health issue.

He emphasized the mission of CTR, which is to **translate academic innovation into real-world applications** by engaging with industry, government, and community partners. This collaborative, **ecosystem-driven approach** is essential for addressing problems with high societal impact, like PFAS contamination.

PFAS (per- and polyfluoroalkyl substances), often called "**forever chemicals**," are found in everyday products and persist in the environment, posing serious health risks including increased cholesterol, liver damage, thyroid disease, and changes in the immune system. There's also evidence suggesting a link between PFAS and decreased fertility, high blood pressure in pregnancy, lower birth weight, and increased risk of certain cancers like kidney and testicular cancer. He highlighted the gravity of PFAS contamination, describing it as a problem of global scale that cannot be tackled in isolation. With over 12,000 PFAS chemicals pervasive in products, water systems, and the environment, their long-term health impacts and resistance to breakdown have made remediation especially complex.

Dhawan expressed gratitude to co-organizers Nick DeNichilo and Carol Walczyk, and acknowledged the support of 25 sponsoring organizations. He highlighted the economic

significance of the PFAS market, which is projected to exceed **$250 billion**, and called for establishing **industry standards and coordinated action** at state, national, and global levels.

The event is part of CTR's ongoing series of workshops, underscoring NJIT's commitment to solving real-world challenges through translational research.

Nick DeNichilo, co-host of the event and co-vice chair of NJIT's Board of Trustees, welcomed attendees and highlighted the impressive diversity of participants, including **faculty, students, researchers from six universities, utilities, engineers, consultants, industry professionals, and government representatives**.

He emphasized that despite representing different sectors, all attendees share a **common purpose**: addressing the **national imperative of managing PFAS decontamination**. DeNichilo stressed the importance of collaboration between **academia, industry, government, and regulators** to effectively tackle this complex challenge.

This workshop is intended to be the **first in a series of events** focused on PFAS. By the end of the day, the goal is to establish **actionable outcomes**, such as forming **subcommittees** and exploring opportunities for **investment in translational research and commercialization**.

He encouraged active participation during the event's sessions, urging attendees to **ask questions, share ideas**, and engage in the collaborative spirit to advance understanding and solutions for PFAS issues.

Nick concluded by inviting NJIT President Teik Lim to speak next and thanked everyone for attending.

NJIT President Teik Lim welcomed attendees to NJIT and expressed gratitude to co-organizers Atam Dhawan, Nick DeNichilo, and Carol Walczyk for their leadership in organizing the impactful event. He acknowledged the presence and contributions of NJIT's Board of Trustees, elected officials, and state legislators, including **NJ Senator Paul Sarlo**, who was later introduced as a keynote speaker.

President Lim emphasized the **critical public health threat posed by PFAS**—a class of "forever chemicals" now found in water, soil, air, and consumable products. He shared a personal anecdote about receiving a PFAS warning in his own community, highlighting the widespread and immediate relevance of the issue.

He noted that **NJIT is actively developing innovative solutions**, including the use of **artificial intelligence and advanced detection technologies** to identify and break down PFAS and microplastics. He described NJIT as a **"nexus of innovation"** that brings together talented individuals to solve real-world problems through **translational research**—not just for academic inquiry, but to improve lives globally.

President Lim closed by applauding the collaborative spirit of the New Jersey research and innovation community gathered at the event and reiterated NJIT's commitment to **leading the charge against PFAS contamination** through impactful research and partnerships.

2. Opening Remarks: NJ Senator Paul Sarlo, Deputy Majority Leader, NJ Senate

Senator Paul Sarlo delivered a passionate and pragmatic message rooted in his unique background as both an NJIT alumnus and a seasoned engineer. He praised NJIT for preparing graduates who not only understand technical challenges but also possess the soft skills needed to engage with clients, regulators, and the public. Speaking from his own experience in government and the private sector, Sarlo emphasized the **economic implications** of PFAS—pointing out that the enormous cost of remediation presents both a challenge and an opportunity for engineers, contractors, and policymakers.

He offered a blueprint for how the problem should be approached: start with utility providers and regulatory agencies who best understand the ground-level realities. Then, collaborate with academic researchers to develop cost-effective solutions. Next, involve design and construction partners early—especially through design-build models. Finally, present actionable, efficient proposals to policymakers like himself who are in a position to secure funding. Sarlo also acknowledged the **communication gap with the public**, warning that the average person may not understand PFAS well enough to support multi-million-dollar investments without education and outreach. His remarks served as both encouragement and a call for strategic advocacy, reminding everyone that the real work begins when the workshop ends.

3. Opening Remarks: Assemblywoman Lisa Swain, Chair, NJ Assembly Appropriations Committee

Assemblywoman Lisa Swain brought both urgency and empathy to her remarks, framing PFAS as not just an environmental issue but a **deeply personal and public health crisis**. Representing communities in Bergen County—one of the areas in New Jersey most affected by PFAS—she shared her concerns as both a legislator and a mother. The presence of PFAS and lead in her district's water supply has made the issue tangible for her and her constituents. She explained how the invisible and persistent nature of PFAS exposure—through water, cosmetics, and even menstrual products—makes the crisis more insidious and harder for the public to grasp.

Swain outlined her legislative efforts to address the crisis, including sponsoring bills to ban PFAS in personal care products, improve public notification systems, and increase funding for infrastructure upgrades. She emphasized that **clean water is a human right**, and that New Jersey has a responsibility to set a national example in environmental justice and public safety. Swain stressed the importance of cross-sector partnerships to translate research into effective legislation and reiterated that solving the PFAS crisis would require not only science and policy but public trust and education.

4. Keynote Session – Government Perspective: Kati (Katrina) Angarone – Chief Strategy Officer, NJDEP

Kati Angarone delivered an informative and policy-rich presentation, detailing New Jersey's pioneering approach to PFAS regulation and enforcement. As Chief Strategy Officer for the NJ Department of Environmental Protection, she emphasized that DEP is not just a regulatory body

but also a **science agency**. She outlined the various ways PFAS enter the environment—through industrial processes, consumer goods, air emissions, and water discharge—and how they ultimately accumulate in the human body and ecosystem. She explained the **long-term health effects**, including increased cancer risk, immune suppression, and developmental delays in infants and children.

New Jersey has been a national leader in setting PFAS standards, she noted. The state began regulating PFAS as early as 2006 and established some of the first drinking water standards in the country. DEP developed its regulatory framework through its Drinking Water Quality Institute and based its limits on the **best available science**, often preceding or exceeding federal EPA guidelines. Angarone detailed the state's enforcement efforts, testing protocols, funding mechanisms (including spill fund access), and public notification systems. She concluded by reaffirming the DEP's commitment to use **science and policy in tandem** to protect public health and ensure accountability from polluters, highlighting that NJ's approach can and should be a model for the rest of the country.

5. Keynote Session – Industry Perspective: Chris Low, Chief Technology Officer, Veolia North America

Chris Low, Chief Technology Officer and EVP of Technical and Performance at Veolia North America, presented Veolia's perspective on the PFAS crisis from an **industry and technological implementation standpoint**. He began by acknowledging the collective effort required to address PFAS contamination, echoing the sentiments of earlier speakers that no single entity—government, academia, or industry—can solve this alone. He applauded NJIT's Center for Translational Research for creating a space to bridge those divides.

Low detailed Veolia's wide-reaching operations, which span water, waste, and energy sectors. Specifically in water treatment, Veolia has significant experience managing both **municipal and industrial systems**, including **owning and operating water and wastewater treatment plants** across the U.S. PFAS has become a central focus for Veolia in recent years due to its persistence in the environment and emerging regulatory pressures. Low stressed that Veolia's work is driven by a dual goal: to **comply with new federal PFAS limits** (such as EPA's MCLs) and to **deliver economically feasible solutions** for municipalities and ratepayers.

One case study he highlighted was the **Stanton Drinking Water Treatment Plant**, a major PFAS remediation initiative. This project reflects Veolia's commitment to deploying scalable treatment technologies. The project involved significant pilot testing, engineering, and collaboration with internal and external stakeholders to reduce both capital and operational costs. Low emphasized the importance of pre-planning and early pilot work, noting that Veolia had anticipated future regulatory requirements and began laying the groundwork well in advance.

From a **technology strategy perspective**, Low discussed common PFAS treatment methods such as **granular activated carbon (GAC)** and **ion exchange**, noting their growing popularity. However, he cautioned that scaling these technologies nationwide poses supply chain challenges—especially for materials like activated carbon. He also addressed **long-term sustainability**, emphasizing the need for systems that not only capture PFAS but ultimately **destroy them**—to avoid merely transferring the pollution from water to waste.

In terms of destruction, Low explained Veolia's work on **thermal destruction technologies**, including incineration, and how the key economic challenge lies in **concentrating PFAS into manageable volumes** to make destruction viable. For example, they are exploring methods like **foam fractionation** to reduce treatment volume dramatically, turning 100 million gallons of contaminated water into a few thousand gallons of concentrated waste that can then be destroyed effectively.

Low also touched on the **investment side of PFAS**, affirming Veolia's aggressive goals in this space—including a projected **1 billion € increase in PFAS-related revenue by 2030**. He noted that Veolia's approach is not just about compliance, but about seizing the opportunity to lead the industry in both innovation and service delivery. This is part of a broader commercial strategy aimed at aligning public health needs with investor expectations.

In closing, Low acknowledged the work of his colleagues at Veolia who have helped lead the company's PFAS treatment program and called for continued innovation, cooperation, and urgency to meet both the technical and regulatory challenges ahead.

6. Panel Session: Academic Perspectives on PFAS Research and Translation

This panel gathered distinguished faculty to present their current research, translational goals, and vision for addressing PFAS contamination. Moderated by Dr. Atam Dhawan, the session focused on the intersection of innovation, application, and societal impact with presentations from:

- Dr. Craig Arnold – Princeton University
- Dr. Lisa Rodenburg – Rutgers University
- Dr. Zhiming Zhang – Rowan University
- Dr. Dibyendu "Dibs" Sarkar – Stevens Institute of Technology
- Dr. Arjun Venkatesan – New Jersey Institute of Technology
- Dr. Wen Zhang – New Jersey Institute of Technology

Dr. Craig Arnold – Princeton University

Dr. Arnold began by emphasizing Princeton's strong commitment to innovation that is not only technically sophisticated but also socially impactful. As the Vice Dean for Innovation, he described the university's efforts in creating a **supportive ecosystem** that empowers researchers to move their discoveries beyond the lab bench. He highlighted the need to foster **interdisciplinary collaborations** where chemists, engineers, environmental scientists, and entrepreneurs come together to solve complex challenges like PFAS contamination.

He acknowledged that while foundational science is critical, universities must also build infrastructure that supports **technology translation**—including legal guidance, market assessment, and venture incubation. He stressed that PFAS remediation is not just a scientific challenge but a **deployment challenge**, requiring scalable, affordable, and field-adaptable solutions. Craig concluded with a call to leverage academic resources more deliberately to serve

the broader public interest, and to enable technologies that don't just remain in academic journals but reach the communities that need them most.

Dr. Lisa Rodenburg – Rutgers University

Dr. Rodenburg drew on her extensive background in **environmental forensics** to argue that detection and tracking are foundational to solving the PFAS crisis. She compared the current PFAS challenge to earlier battles with PCBs and dioxins, highlighting how critical it was to **understand contaminant sources, chemical transformations, and environmental persistence** in guiding regulation and cleanup. Her work at Rutgers focuses on tracing legacy and emerging contaminants in air, water, and soil, using advanced chromatographic and mass spectrometric tools.

She emphasized that PFAS is not one chemical but a complex class of thousands of substances with different behaviors and toxicities. Thus, identifying **which PFAS are present** and linking them to specific industrial or consumer sources is key to enforcement and prioritization. Dr. Rodenburg called for increased investment in **analytical method development** and **open-source databases** that can be shared across agencies, industry, and academia. Her message was clear: "If we can't measure it, we can't manage it."

Dr. Zhiming Zhang – Rowan University

Dr. Zhiming Zhang focused on **sustainable and energy-efficient water treatment solutions**, especially in dealing with PFAS in complex waste streams. He explained that traditional water treatment systems often fall short when dealing with PFAS due to the chemicals' resistance to degradation and their ability to persist through standard treatment processes. At Rowan, his team is developing **integrated hybrid systems** that combine biological processes with advanced physicochemical treatments such as sorption and advanced oxidation.

He stressed the importance of **scalability and cost-efficiency**, especially for smaller or rural utilities that lack the financial resources for expensive upgrades. Dr. Zhang also noted the need for **real-world piloting** and **life-cycle analysis** of technologies to ensure they are not only effective in the lab but sustainable and affordable in practice. He framed the role of academic research as providing not just innovation but **practical, adaptable tools** for the water sector.

Dr. Dibyendu "Dibs" Sarkar – Stevens Institute of Technology

Dr. Sarkar offered a geochemical and environmental health perspective, grounded in field experience at **military sites contaminated with aqueous film-forming foams (AFFF)**. He spoke about the environmental behavior of PFAS in **soils**, noting that most regulatory attention has focused on drinking water, while soil contamination—often the source of PFAS and a major pathway to both human and ecological exposure—remains under-addressed. He presented data

from AFFF-contaminated soils, where **short-chain PFAS compounds** were shown to be more mobile and more available for plant uptake.

His key message was that **not all PFAS behave the same**, and risk assessments for soil-PFAS need to account for specific local conditions—such as pH, soil texture, and organic matter content—that influence PFAS transport and plant uptake. Dr. Sarkar called for **site-specific treatment strategies** and more comprehensive field studies. He advocated for integrating **geochemistry, toxicology, engineering, and community engagement** to build trust and implement effective PFAS remediation strategies, especially in historically overburdened areas.

Dr. Arjun Venkatesan – New Jersey Institute of Technology

Dr. Venkatesan addressed the **analytical burden** of PFAS monitoring, particularly the difficulty in identifying and quantifying thousands of individual compounds. He proposed a **surrogate compound approach**, where representative PFAS molecules from each chemical subclass and/or total organic fluorine (TOF) could be used to streamline detection and treatment validation. This approach would allow regulatory and engineering efforts to move forward without waiting for full characterization of every individual chemical.

He emphasized that this strategy isn't about simplifying the science but about making it **actionable** in the near term. He explained that many current technologies are evaluated based on just a handful of PFAS, while dozens more may be present but unregulated. Venkatesan urged regulatory bodies and technology developers to adopt **class-based strategies** to address PFAS collectively, rather than playing chemical whack-a-mole. He also underscored the importance of **rapid detection**, proposing advancements in sensor technologies that could be used in real-time monitoring.

Dr. Wen Zhang – New Jersey Institute of Technology

Dr. Wen Zhang presented his work on **advanced treatment systems** for PFAS, particularly from sources with very high contamination levels such as landfill leachate. He described novel approaches using **nanobubble-enhanced foam fractionation** and **electrochemical oxidation** to not only remove but degrade PFAS. Unlike traditional activated carbon systems, which are limited by adsorption saturation and require disposal of contaminated media, Zhang's methods aim to **transform PFAS molecules** into non-toxic byproducts.

He stressed that one of the greatest challenges is energy use—many advanced treatments are effective but not cost-efficient. His team is optimizing electrode materials and reaction conditions to **minimize energy input while maximizing destruction efficiency**. He also advocated for **field-scale validation** of these technologies and encouraged investment in sensor-based monitoring systems to help communities self-assess their exposure. Zhang emphasized that public empowerment—through affordable technology and transparent data—should be part of any solution strategy.

Audience Question:

The attendee raised a **multi-part question** rooted in concern over the **sheer number of PFAS compounds**—noting that over 10,000 exist, yet most discussions (including this workshop) tend to focus on just a few, such as PFOA and PFOS. They asked:

- How are we addressing the **emergence of new PFAS compounds** being developed and discovered every day?
- Are current technologies **actually degrading PFAS**, or are we simply **transferring contaminants from one medium to another** (e.g., water to sludge)?
- What **detailed, practical solutions** exist or are being developed to confront this growing and evolving problem?

Comments from Moderator (Atam Dhawan, NJIT):

Dr. Dhawan acknowledged the question as highly relevant and important, particularly in the light of the growing complexity of PFAS contamination. His response included the following key points:

- This issue is **too broad and complex for any single sector** to address alone.
- He emphasized that this very topic—**how to prioritize strategies and build partnerships to translate research into action**—would be the focus of the next session at **2:00 PM**, which would include representatives from **academia, industry, utilities, and the community**.

He suggested the conversation would resume in that panel with a goal of outlining how to **balance research innovation with practical deployment**, especially considering the expanding chemical scope of PFAS.

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7. Panel Session: Industry Perspectives on PFAS Research and Translation

Second Panel Session focused on the **industry perspective on PFAS innovation, technology translation, and real-world deployment challenges**. The panel was moderated by **Carol Walczyk** of Veolia and featured key insights from:

- Brent Alspach (Arcadis)
- Lauren Weinrich (American Water)
- Jason Hnatko (Allonnia)
- Rick Gillespie (Revive Environmental)

Carol Walczyk – Vice President of Engineering, Veolia North America

Carol Walczyk opened the session by grounding the conversation in Veolia's direct experience with PFAS treatment challenges, particularly in the Northeast. She framed the discussion as one of **execution and implementation**—moving beyond academic discovery into full-scale operation. She referenced Veolia's work at the **Stanton Water Treatment Plant** in Delaware, a project that required **fast-tracking engineering, permitting, and piloting** to meet the state's early PFAS regulations. Carol emphasized that real-world PFAS solutions are complex, involving multiple technologies and constant adaptation to regulatory changes.

She also addressed the importance of **interdisciplinary collaboration**, noting that engineering teams are now working closely with scientists and data experts to optimize systems for varied PFAS profiles. Carol pointed out that one of Veolia's strategies is to **design systems that are modular and flexible**, allowing for treatment customization across geographies and contamination levels. Her message was clear: **innovation must meet practicality**, and successful implementation requires anticipating regulatory shifts and integrating research at every step of the design-build process.

Brent Alspach – Director of Applied Research, Arcadis

Brent brought a consultant's perspective shaped by over two decades of engineering and technology vetting. He began by drawing attention to the **disconnect between available PFAS treatment innovations and their actual deployment**. While promising technologies—like oxidation, plasma, and foam fractionation—are emerging, many utilities continue to use **granular activated carbon (GAC) and ion exchange resins**. Why? Because those are the technologies that regulators trust and engineers can confidently implement today.

In terms of the Best Available Technology (BAT) for PFAS treatment, he argued that **cost is often used as a red herring** in resisting innovation. Brent pointed out that PFAS treatment, even when expensive in absolute terms, often costs households less than a few cups of coffee per month when broken down into utility rates. Although it should be acknowledged that this cost can be significant for some economically disadvantaged ratepayers, there are means of supporting these customers. Instead, he pointed to **institutional risk aversion**, especially among municipal utilities, as the bigger barrier. When you're using public dollars tp protect public health, you understandably tend to stick with technology that's proven—. Moreover, most innovative technologies for PFAS treatment (i.e., destructive technologies) do not have state regulator permitting and/or NSF 61 certification for use in drinking water treatment applications. Thus, for implementing these technologies, Brent advocated for a **holistic approach**, where utilities, regulators, and vendors collaborate to pilot new systems under controlled, supportive conditions. He stressed that **certainty, not novelty**, drives implementation in the municipal drinking water sector.

Lauren Weinrich – Director of Research & Development, American Water

As a representative from **the largest regulated water utility in the U.S.**, Lauren provided first-hand insight on what it takes to test and adopt a PFAS treatment system within a water and wastewater, customer-facing utility. She explained that American Water has made PFAS a central focus of its research strategy, with efforts underway to **test short-chain PFAS**, develop **predictive water quality models**, and compare **treatment effectiveness across different source waters**. One key challenge she raised is the **limited availability of scalable, validated solutions** ready for deployment.

Lauren emphasized the need for **field data, reproducibility, as well as planning and clarity on operating costs**, all of which are crucial for utilities making long-term infrastructure decisions. She echoed Brent's sentiment: **utilities can't afford to be serial number one**. They need a reliable track record before committing. She added that universities and startups should focus on pushing technologies from TRL (Technology Readiness Level) 5 or 6 up to 8 or 9 through **collaborative pilots and demonstration-scale deployments**. Lauren also stressed the importance of **community trust**—with water being the only ingestible utility, the water industry must prove that systems work, and that they protect public health without surprises.

Jason Hnatko – Engineering Lead, Allonnia

Jason represented Allonnia, a technology company aiming to solve PFAS challenges through **electrochemical and separation technologies**. He described the company's core innovation—**foam fractionation**—a technique that injects air bubbles into contaminated water to separate PFAS by making them adhere to foam, which is then skimmed and collected as a concentrated brine. This method offers the benefit of removing PFAS without relying on GAC or ion exchange, potentially reducing secondary waste issues.

Jason's perspective highlighted the **startup struggle of proving efficacy at scale**. He discussed how Allonnia is working with landfill operators, municipalities, and pilot sites to test performance under varying conditions—including high salinity, temperature shifts, and complex organics. He noted that **every water source behaves differently**, which means customization and adaptive engineering are essential. A key challenge he raised is **securing permitting and customer confidence**, especially when proposing non-traditional technologies. Jason called for **more flexible permitting frameworks**, better access to pilot funding, and standardized performance metrics across jurisdictions.

Rick Gillespie – Chief Commercial Officer, Revive Environmental

Rick spoke from the vantage point of **PFAS destruction technology**, an area that remains the final frontier in PFAS remediation. As CCO of **Revive Environmental**, a spinout from Battelle, Rick described their development of high-efficiency PFAS destruction systems using **supercritical water oxidation (SCWO)** and **thermal treatment**. These systems are aimed at treating **concentrated PFAS waste streams**, including landfill leachate and aqueous film-forming foam (AFFF) from firefighting applications.

He emphasized that Revive's customers often face **regulatory lockouts**—such as being barred from discharging leachate due to PFAS content—and are looking for **urgent, reliable destruction solutions**. Rick explained that separation is no longer enough: it's the final destruction step that will determine whether PFAS can be truly removed from the environment. He highlighted the need for **mobile, scalable systems** that can be brought directly to contaminated sites. Rick also stressed the importance of **coordination between regulators, site operators, and technology developers**, especially when dealing with hazardous, legacy waste streams.

Panel Highlights and Key Themes

- **Technology Readiness:** Both Lauren and Brent emphasized the importance of **TRL (Technology Readiness Level)**, and the industry's reluctance to adopt systems without full-scale validation.
- **Data and Pilots:** Panelists urged developers to **generate performance data** across multiple conditions and regions to help utilities feel confident in implementation.
- **Regulatory Certainty:** Inconsistent acceptance of new technologies across states is slowing adoption. Panelists called for **federal standards** and **predictable permitting** to reduce delays.
- **Utility Perspective:** Public utilities are under immense pressure to act but must **protect public health and budgets**—making reliability, cost, and regulatory alignment essential.
- **Innovation Gaps:** While technologies like foam fractionation and advanced oxidation are promising, more work is needed on **destruction efficiency** and **waste management**.

A. Question to the Panel: "What are the barriers to implementing innovative destructive technologies at municipal scale?"

Directed to: Brent Alspach (Arcadis)

Response Summary: Brent responded with candor, saying that while he wanted to be provocative, the reality is clear: **GAC and ion exchange remain the preferred methods** because they are **regulator-approved, easily designed, and familiar**. Many newer "destructive" technologies are either not commercially available or lack deployment history. He added that cost concerns are overblown compared to everyday expenses—arguing that **ratepayer impacts are minimal** in the broader context. However, the **risk of trying unproven technologies with public funds** remains a huge implementation barrier.

B. Question to Rick Gillespie (Revive Environmental): "What insights can you offer on navigating regulatory delays for newer technologies?"

Context from audience member: An operator from the Mid-Atlantic region shared frustration with **long pilot testing requirements**, stating that even switching from carbon to ion exchange can require a **nine-month pilot**, delaying the entire permitting and construction process while the system remains operational.

Rick's Response: Rick acknowledged that **municipal water treatment systems face far more regulatory hurdles** than private or industrial clients like landfills. He emphasized that commercial operators often have more freedom to test and implement innovations. He sympathized with the delays but admitted there are **no easy shortcuts**, and that **regulatory harmonization across states** would help ease this burden.

C. Follow-Up Comment and Addition by Jason Hnatko (Allonnia):

Jason added that his team has also faced **inconsistent state regulations**, which sometimes force modifications that **reduce system performance**. Some states are more flexible and innovation-friendly, while others impose **very specific technical requirements** that can stifle implementation. He reinforced the need for **national-level regulatory guidance and standards**, especially for newer technologies like Allonnia foam fractionation system.

D. Technical Question to Jason Hnatko: "Can foam fractionation work without adding foaming agents? How do you remove short-chain PFAS?"

Jason's Response: He explained that while **foam fractionation can work naturally with some waters (e.g., landfill leachate)**, **foaming agents** can be added to improve performance, especially for removing **short-chain PFAS**, which are harder to capture. He elaborated on the **chemistry of surfactants** and how modifying the formulation—such as adding **cationic surfactants**—can improve efficiency. He offered to go deeper into the technical details afterward and invited attendees to tour Allonnia pilot setups.

E. If this is my magic wand and you had one wish on research need for the PFAS topic. What would be the next development that you would want to see?

Brent's Response: I guess offhand, I'd really like to see some of the microbial processes get better, more efficient. It was talked about earlier, and I've seen the paper from Princeton a number of years ago. And if we can engineer that to scale faster. I think that's a great potential solution long term.

Lauren's Response: I guess my greatest wish would be in treatment monitoring for efficiency in these systems we have on the drinking water side, and on the wastewater side as well. Getting these sensors and rapid insights into that treatment operation status. Now that can't be used for compliance, but if we have insights into online sensors that can get down to those levels, we're looking at in drinking water. That would be very helpful in the day-to-day operational aspects as we balance the analytical costs for PFAS monitoring.

Jason's Response: I agree with that one. So I'm super excited about the microbial work. We would love to be using microbes for this. But since that's been taken. I'm going to say really a global understanding of the problem and what is important and what is not. So we get questions all the time about short chain and ultra short chain PFAS. And it'd be great to know if those are really a

concern. Are there health risks with those? Are we going to have to regulate those? Or should we really just focus on the ones we know and understand now?

Rick's Response: I would say regulatory certainty You know, we're seeing regulatory enforcement really at the local level for most industrial dischargers. And there is wide variability in that. We are not evaluating for PFAS yet all the way down to like, in Columbus, our discharge permit is four parts per trillion for PFOA. We're meeting drinking water standards. I think from an industrial discharge; we're treating things like landfill leachate to drinking water standards for PFAS. We're able to do it, but it'd be nice if that was consistent across the US. And I don't know how many end users are in the audience. They're looking for that certainty too. They know that we have a problem, and they want to fix the problem. They need to know what goal posts are for the solutions.

Nick DeNichilo's Comments: Nick commented that significant effort is underway in academic translational research and scalable treatment technologies by water, wastewater, and wastewater utilities and agencies addressing a problem, a national imperative, that they did not create but must solve. The work to date by all these stakeholders, many in the audience today, is commendable and inspiring BUT until we address the upstream elimination of PFAS in consumable products, the problem and challenges faced downstream will persist. Perhaps another venue for the Center of Translational Research would be a session with upstream supply chain stakeholders including manufacturers and companies that use PFAS laden compounds in their consumable products. This venue would be a great opportunity for our faculty and scientists in academia to work with industry to research new chemical advances to apply new compounds as a substitute to PFAS.

Responding to the "wish" request, DeNichilo's wish is that the industry stakeholders avail themselves of the incredible talent in our students. Nick's appeal is for hiring students as co-ops, apprentices, part time employees, etc.

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8. Closing Remarks: Post-Panel Reflection and Key Messages

Atam Dhawan began this session by reiterating one of the most powerful takeaways from the day: **PFAS decontamination and management is a broad, multidimensional challenge** that cannot be addressed by one discipline or sector alone. He emphasized that the issue cuts across **science, engineering, health, policy, business, and community concerns**, and thus requires a **transdisciplinary, collaborative ecosystem**.

He made a compelling analogy drawn from his medical background: "**Prevention is better than cure.**" While many speakers and researchers had focused on **detection, remediation, and management**, Dr. Dhawan argued that **prevention must be equally prioritized**. He asked attendees to consider upstream interventions - what PFAS contamination chemicals should be targeted first for elimination and what alternate materials can be used? - and if **reducing PFAS at the source**, like consumable products and infrastructure materials, could be as important as treating it at the point of exposure.

Strategic Collaboration Vision

Dr. Dhawan then transitioned to a forward-looking view, underscoring that the workshop was **not the end but the beginning** of a larger movement. He presented NJIT's plan to **form strategic collaborative focus groups** consisting of leaders from academia, industry, government, and community stakeholders. These working groups would tackle three tiers of PFAS-related challenges:

1. **Early-Stage Research Translation (TRL 1–4):** Focused on identifying key contaminants, validating detection methods, and building foundational knowledge.
2. **Mid-Stage Development (TRL 5–7):** Centered on piloting and preparing technologies for pre-commercialization and investment readiness.
3. **Deployment and Policy Integration:** Bridging field validation with regulatory and infrastructure planning to enable scalable, sustainable impact.

He invited all workshop attendees to become **active participants in this ecosystem**, noting that follow-up communications would include sign-up forms to join working groups and attend future strategy meetings.

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9. Final Call to Action

Dr. Dhawan announced that a **follow-up workshop in the fall** would bring together these strategic groups for networking, coordination, and action planning. He assured attendees that next time, the event would be held in a **larger venue (the NJIT Wellness and Events Center)** to accommodate the strong interest and attendance seen at this workshop.

In closing, he emphasized the importance of this moment:

"Let's not let this energy fade. Let's convert this momentum into a roadmap—an actionable, inclusive plan for PFAS innovation, prevention, and remediation."

Atam Dhawan and Nick DeNichilo thanked all the attendees and speakers for their enthusiastic participation and promised to follow up with the formation of three strategic collaborative focus groups to address PFAS related challenges and innovation translation for decontamination, remediation and management soon.


Opening Rema
Paul A. Sarlo
NJIT


Remarks:


NJIT
Innovative Solutions:
Applied and
Translational
Research

CTR Workshop on Translational Research and Technology Innovations for PFAS Decontaminations

invites you to join

NSF Funded Accelerating Research Translation (ART) National Network Portal https://artportal.us/

QR Code for to Join ART National Network Portal

ART Network Portal Membership Information			ART Network Portal Membership Form

Accelerating research and innovation translation for potential societal benefits and economic impact requires an ecosystem of researchers, innovators, and stakeholders. This includes technology developers, industry and businesses, funding agencies, inventors, policymakers, and community leaders. The ART Network portal includes institutional ART programs and projects with clusters of technologies in translation addressing national and global society needs, and their respective ecosystems of translational research, innovation partnerships, and technology commercialization.

The ART Network portal membership includes research collaborators, innovators, students, industry and community partners and investors engaged in the Seed Translational Research Projects (STRPs) and associated tech-transfer activities for potential commercialization. In addition, The ART Network community extends membership at large to include potential research collaborators, industry partners, funding agencies and investors, and community stakeholders interested in innovation translation to use-inspired applications for societal benefits and economic impact developing a nationwide ecosystem.

We are developing a national cluster of innovative translational research and technologies for PFAS decontamination, remediation and management with leading academic researchers and industry, government and community partners at the ART Network Portal.

Please join the ART Network Portal today to access and learn more about the innovations and technologies in translation for PFAS decontamination, remediation and management and academia-industry-government-community partnerships.

Biographical Sketches

Atam P. Dhawan is senior vice provost for research at the New Jersey Institute of Technology (NJIT). He is a tenured Distinguished Professor of Electrical and Computer Engineering, Executive Director of the Center for Translational Research, and Executive Director of Undergraduate Research and Innovation. He is an elected Fellow of the National Academy of Inventors (NAI) and NAI Innovation Ambassador, Fellow of the Institute of Electrical and Electronics Engineering (IEEE), Fellow of the American Institute of Medical and Biological Engineering (AIMBE), and Fellow of the International Academy of Medical and Biological Engineering (IAMBE) and serves on the NAI Board of Directors, NJII Board of Directors, R&D Council of NJ Board of Directors, IEEE Transactions on Biomedical Engineering Scientific Advisory Board, and the NIH Point-of-Care Research Network Advisory Board which he chaired from 2019-2025.

Dr. Dhawan is a recipient of numerous awards including Martin Epstein Award (1984), NIH FIRST Award (1988), Sigma-Xi Young Investigator Award (1992), IEEE EMBS Early Career Achievement Award (1995), Doermann Distinguished Lecture Award (1999), EMBS Distinguished Lecturer award (2012-2013), IEEE EMBS William J. Morlock Award in Excellence in Biomedical Technology (2021) and NJ Innovate 100 Leaders Award (2024). His research interests lie in medical imaging, medical image analysis, point-of-care technologies, and pattern recognition. Dr. Dhawan has received more than $86 million in research grants and contracts as Principal Investigator or Co-PI. He has published over 216 research papers and book chapters. He has also authored and co-authored several books in medical imaging, and image analysis. He holds several patents, some of which have been commercialized and being used for screening of skin-lesions for diagnosis of skin-cancers, and in the treatment of spider vein diseases.

Nicholas DeNichilo, PE, was the President and Chief Executive Officer of Mott MacDonald, North America and is presently a retired professional engineer serving on various boards and professional associations. Nick officially retired as of January 1, 2022. He was responsible for the success and sustainability of the firm's entire operation in North America. Mott MacDonald - North America is a $600 million business with 2500 employees and is part of Mott MacDonald's $ 2 billion global operations with 16,000 employees. Nick served as a member of the Mott MacDonald Group Executive Board. He brings technical expertise, with 48 years of experience in the consulting field, an extensive network of relationships with key industry leaders and regulators.

An industry expert, Nick DeNichilo has authored and presented numerous technical papers, and hosted technical discussions at various industry events. He is past Chair of the American Society of Civil Engineers' (ASCE) Industry Leaders Council and is a past Chair of the New Jersey Section of the American Water Works Association (AWWA). He is a member of the Environmental and Water Resources Institute (EWRI) of ASCE. Mr. DeNichilo is also a member of the National Academy of Construction. He is a member of the New Jersey Institute of Technology's Board of Trustees and previously served as a member of NJIT's Board of Overseers and past Chairman of the Newark College of Engineering Board of Visitors. He is a member of the Board of Directors of the New Jersey Innovation Institute. He previously served as a member of the University of Rutgers, New Jersey Climate Change Alliance. Mr. DeNichilo is also a Board member of the Villanova Career Compass Advisory Board. He is a member of the Board of Advisors of the Industry Board of Center for Buildings, Infrastructure and Public Space at Columbia University.

Nick has been honored to receive awards throughout his career, including ASCE's Engineer of the Year Award in 1999. In 2003 New Jersey Section of the American Water Works Association awarded Nick the George Warren Fuller Award for his distinguished professional volunteer service in the water field. In 2005, the NJIT Alumni Association presented Nick with the Association's Distinguished Alumni Achievement Award. In 2014, ASCE awarded Nick the Outstanding Projects and Leaders (OPAL) Award, which recognizes and honors outstanding civil engineering leaders whose lifetime achievements and accomplishments have made significant differences in the field of engineering management. In 2015, ASCE awarded Nick the John I. Parcel – Leif J. Sverdrup Civil Engineering Management Award for becoming a widely respected national voice on behalf of safe engineering practices and the need for resilient infrastructure. In 2020 Nick was selected as an Honorary Diplomate, Water Resources Engineer (Hon.D.WRE) in the American Academy of Water Resources Engineers. In 2021, Nick was awarded the Newark College of Engineering Outstanding Alumni Award.

Nick received his BSCE from Newark College of Engineering and his MSCE from the New Jersey Institute of Technology.

Carol Walczyk is a licensed professional civil engineer and certified project management professional with 35 years of experience in environmental infrastructure planning, design, construction and operations. She has been with Veolia since 2017, currently serving as Vice President of Engineering - Technical & Performance, where she leads a team of senior technical experts supporting operations, driving innovation, spearheading growth initiatives, and facilitating business development for Veolia's water, waste, and energy businesses across the US and Canada. Carol is also a Subject Matter Expert on PFAS and other contaminants of emerging concern for the Veolia global network. In addition to her role at Veolia, Carol is a Vice President of the American Water Works Association.

Teik C. Lim is the 9th President of New Jersey Institute of Technology and also holds the title of Distinguished Professor of Mechanical Engineering. Prior to joining NJIT on July 1, 2022, Dr. Lim led the University of Texas at Arlington (UTA) as interim president from 2020-2022 and was Provost and Vice President for Academic Affairs at UTA from 2017-2020.

Dr. Lim's career has spanned from the private sector to university administration. He worked as an engineer at Structural Dynamics Research Corporation before joining The Ohio State University Center for Automotive Research as a research scientist. He taught at the University of Alabama beginning in 1998, as associate professor, before joining the University of Cincinnati in 2002, where he advanced from associate professor to professor to department head and to associate dean for graduate studies and research before, ultimately, being named Dean of the College of Engineering and Applied Science. Dr. Lim earned his Bachelor of Science in Mechanical Engineering (ME) from Michigan Technological University, his Master of Science in ME from the University of Missouri-Rolla, and his Ph.D. in ME from The Ohio State University.

Dr. Lim is internationally recognized as a leading scholar in the field of structural vibrations and acoustics as well as modeling and simulation technology. He was named a Fellow of the National Academy of Inventors in 2018. He is Fellow of the American Society of Mechanical Engineers and of the Society of Automotive Engineers, from which he received numerous research and teaching awards such as the Arch T. Colwell Merit Award in 2003 and the Ralph R. Teetor Educational Award in 2002. Dr. Lim also was recognized with the Thomas French Alumni Achievement Award in 2010, the GearLab Distinguished Alumnus Award in 2017, and the Distinguished Alumni Award for Academic Excellence in 2019 from his alma mater, The Ohio State University.

Paul A. Sarlo is the Deputy Majority Leader of the New Jersey Senate. He serves as chairman of the Budget and Appropriations Committee and is a member of the Judiciary Committee, the Higher Education Committee, the Joint Budget Oversight Committee, and the Senate Legislative Oversight Committee. He is a former chairman of the Judiciary Committee and the Labor Committee. He has also sponsored bills which reformed New Jersey's worker's compensation system, criminalized the illegal trafficking and distribution of prescription drugs, required schools to adopt bullying prevention policies and upgraded penalties for identity theft.

Mr. Sarlo's career in public service spans more than two decades. He has served as Mayor of the Borough of Wood-Ridge since 2000 and served on its Borough Council from 1995-2000. In 2001, he was elected to the New Jersey General Assembly, a position he held until May 2003 when he was sworn in to the New Jersey Senate to fill an unexpired term. He was elected to a full

term in the New Jersey Senate in November 2003 and was re-elected in 2007, 2011, and 2013. Mr. Sarlo represents the 36th legislative district, which includes 15 municipalities in Bergen and Passaic Counties.

Assemblywoman Lisa Swain represents the 38th Legislative District in the NJ General Assembly. She was sworn in on May 24, 2018 to succeed Senator Joseph Lagana, and she serves as Chair of the Assembly Appropriations Committee, Vice Chair of the Assembly State and Local Government Committee, and as a member of the Assembly Education Committee.

Prior to joining the state legislature, Lisa gave back to her community by serving on the Fair Lawn Borough Council from 2008-2018 and was elected Mayor in both 2011 and 2018. Lisa has always stayed active in her community, working closely with the Fair Lawn Economic Development Corporation, the Green Team, and her constituents to help solve their varied issues. She's an accomplished triathlete and member of Team USA, the World Championship Triathlon Team. She's also the Vice President of the North Jersey Masters Track & Field Club.

Lisa graduated with a B.A. from the University of Rochester and has her M.A. from New York University. She resides in Fair Lawn with her husband, Ron, and has two adult kids.

Katrina Angarone serves as Chief Strategy Officer for the New Jersey Department of Environmental Protection. Kati advances strategic initiatives, including expanding public access to environmental information, increasing the visibility of DEP programs and services, cultivating external partnerships and coordinating strategic planning on cross-media issues. She also oversees the efforts of our Office of Legislative Affairs and our Office of Environmental and Public Health Analysis.

Kati has worked at DEP for more than 25 years. She previously served as Assistant Commissioner for Watershed and Land Management (WLM), overseeing the Division of Watershed Protection & Restoration, the Division of Land Resource Protection and the Division of Resilience, Engineering & Construction. As WLM's leader, she focused on advancing watershed initiatives, including integration of New Jersey-specific climate change science into watershed policy. The post followed a term as Associate Commissioner for Science & Policy, where she managed science, environmental health and economic analysis programs, while developing policy protective of New Jersey's environment and public health.

Earlier, Kati spent several years focused on water policy, including the adoption of new drinking water standards, which involved first-in-the-nation PFAS standards and water supply emergency response. More than half of her DEP career was spent assisting with the development

of New Jersey's state land use policies, including stormwater management, habitat protection, flood hazard area controls and protection of the Highlands region.

A passionate advocate of the environment, Kati is dedicated to DEP's mission to protect the environment and public health in service to the people of New Jersey.

Chris Low is Chief Technology Officer and EVP of Technical and Performance, EHS - Veolia North America. Chris has over 23 years of experience working on water treatment projects. During his career he has worked in Engineering, Project Management, and General Management roles delivering treatment solutions to both Municipal and Industrial customers.

As Chief Technology Officer, he is currently responsible for Veolia North America's technical engineering, capital project delivery, environmental compliance, health & safety, and operational excellence. Chris has executive oversight of our capital investment program for PFAS treatment in drinking water and at our hazardous waste incineration facilities.

Wen Zhang is a professor of NJIT's Newark College of Engineering in the Department of Civil and Environmental Engineering with a joint appointment in the Department of Chemical and Material Engineering at NJIT. Wen is a licensed Professional Engineer registered in the States of New Jersey and Delaware. He is an American Academy of Environmental Engineers and Scientists (AAEES) Board Certified Environmental Engineer (BCEE). Dr. Zhang leads the Nanotechnology in Sustainable Environment and Agriculture Laboratory with two major missions of (1) mitigating the impact of climate change through sustainable agricultural irrigation and food disinfection, and (2) developing nanotechnology-based materials and processes for sustainable pollution mitigation and resource recovery. Dr. Zhang has a broad spectrum of research interests and footprints in colloidal science and interfaces, nanomaterial synthesis and characterization, catalytic processes and engineering that translate into vibrant scientific research and technology transfer activities. For example, his current efforts embrace reactive membrane filtration systems to develop novel air and water disinfection technologies, resource recovery from wastewater, desalination and persistent contaminant removal. Two of his patented technologies have been licensed by external commercial companies. For example, PureNanotech Inc. is one of them that promotes nanobubble technology for enhanced plant growth irrigation in controlled environment agriculture applications. His research on microwave-enhanced filtration system received 2023 Grand Prize for University Research in the AAEES Excellence in Environmental Engineering and Science Competition. In 2023, he was inducted as a senior member of the US National Academy of

Innovators (NAI) and nominated for the IAAM fellow of the International Association of Advanced Materials (IAAM).

Arjun Venkatesan is an Associate Professor in the Department of Civil & Environmental Engineering at NJIT. His research focuses on the occurrence, fate, and treatment of toxic chemicals in the environment, with a current focus on PFAS. Additionally, he develops novel analytical and monitoring approaches to assess human and environmental health risks associated with toxic exposures and drug use. To date, he has secured and managed >$7 million in externally funded research grants from federal (NSF, US DoD, US DOE, USBR), state, and industry sponsors. His work has been featured in media, including National Geographic, NY Times, PBS programming and the National Institutes of Health, among others. He is a recipient of the 2025 40 Under 40 Recognition Program from the American Academy of Environmental Engineers and Scientists. Venkatesan received his Master's in environmental engineering from the University of Nevada, Las Vegas (2009) and his Ph.D. in environmental engineering from Arizona State University (2013). To date, Dr. Venkatesan has published 60 plus peer-reviewed journal articles on emerging contaminants, wastewater-based epidemiology, and water treatment.

Dibyendu "Dibs" Sarkar is professor of environmental engineering and the founding director of the Stevens Center for Sustainability at Stevens Institute of Technology. He is broadly trained as an environmental geochemist with research interests in environmental remediation, risk assessment, and green technology development. Between 2008 and 2015, he was a professor of environmental science and founding director of the Environmental Science and Management PhD program at Montclair State University, New Jersey. Between 2000 and 2008, he served as an assistant and associate professor and associate dean of graduate studies and research at the University of Texas at San Antonio.

Dibs graduated with a PhD in geochemistry from the University of Tennessee in 1997 and worked as a postdoctoral scientist in soil and water chemistry at the University of Florida until 2000. He is a licensed Professional Geologist in the State of Texas. Thus far, he has advised/advising 35+ PhD and MS/ME students, 20+ postdoctoral associates, and many visiting scholars. He has published 3 books, 180+ journal articles, 20 book chapters, and 300+ technical abstracts and conference proceedings. He has received more than $17 million in grant funding as a PI or Co-PI to support the research activities. He is a Fellow of the Geological Society of America, and a Fellow of the Soil Science Society of America, and the founding principal of SIROM Scientific Solutions, LLC, an environmental R&D startup incorporated in New Jersey. He is the founding editor-in-chief of Current Pollution Reports (Springer), founding section editor-in-chief of Environmental Sciences section of Applied Sciences (MDPI), founding technical editor

of International Journal of Environmental Science and Technology (Springer), and associate editor of Environmental Technology and Innovation (Elsevier) and Environmental Geochemistry and Health (Springer). Dibs serves as a reviewer for many journals, and in panels of several grant funding agencies, including NIH and NSF.

Lisa Rodenburg has a BA in chemistry from Wittenberg University and PhD in Environmental Engineering from Johns Hopkins. She has been a professor in the Environmental Science Department at Rutgers for 25 years. She is an expert on source apportionment of PCBs and other organic contaminants. She also does consulting and expert witness work.

Zhiming Zhang is an Assistant Professor in the Department of Civil & Environmental Engineering at Rowan University. Dr. Zhang obtained his Ph.D. degree from Florida State University in 2019. Before joining Rowan University as an Assistant Professor in 2023, he was a postdoctoral fellow in the Environmental Sustainability Laboratory at Stevens Institute of Technology.

Dr. Zhang has a broad research background in Environmental Engineering, ranging from tiny scales in microorganisms and nanoparticles for environmental remediation to large scales in stormwater management and watershed protection. His current research work includes sustainable water and wastewater treatment using biological and physicochemical methods to remove legacy and emerging contaminants (e.g., heavy metals and PFAS), in-situ remediation of contaminated groundwater and soil, development of green technologies, and the optimization of stormwater best management practices.

Craig B. Arnold is Princeton's Susan Dod Brown Professor of Mechanical and Aerospace Engineering and Vice Dean for Innovation at Princeton. As vice dean for innovation, Craig B. Arnold leads the Princeton Innovation initiative and oversees the University's efforts to grow Princeton's culture of innovation across disciplines. The role aims to strengthen the University's capacity to engage with entrepreneurs, alumni, industry, technology investors and other potential partners.

Arnold is Princeton's Susan Dod Brown Professor of Mechanical and Aerospace Engineering. He has served since 2015 as the director of the Princeton Institute of Materials. He leads a vibrant research program that ranges from basic science to applied technology aimed at

developing a deeper understanding of materials synthesis and processing in areas including advanced manufacturing, energy storage and conversion, and optics and photonics. In 2017, Arnold received an Edison Patent Award from the Research & Development Council of New Jersey for the creation of an adjustable lens that focuses light in response to sound waves. The tunable acoustic gradient (TAG) lens is now used in many industrial and research applications including robotics, machine vision, industrial metrology and ultra-high precision microscopy. Arnold holds 13 granted patents, and is the co-founder of two companies based on research conducted at Princeton. TAG Optics Inc. developed the TAG lens and was later acquired by a major precision instrument manufacturer. Invictis Technologies is working to create a safer and less painful automated intravenous injection device.

Arnold was named a Knight of Laser Technology (2018) by the International Academy for Production Engineering (CIRP)-Photonic Technologies. He has received a number of prominent industry awards for his technology including R&D World magazine's R&D 100 award, the SPIE Prism Award for Photonics Innovation, and Vision Systems Design magazine's Innovators Award. Arnold has received prestigious federal awards and grants, including the National Science Foundation CAREER Award and the Office of Naval Research (ONR) Young Investigator Award.

Jason Hnatko is the Engineering Manager for Emerging Contaminants at Allonnia whose mission is to solve the world's toughest environmental challenges. Jason leads the SAFF team tasked with implementing foam fractionation to remove PFAS from aqueous matrices. At Allonnia he has led numerous foam fractionation bench tests, nine field pilot tests, and three permanent SAFF installations.

Jason holds a PhD in Civil & Environmental Engineering and is a registered Professional Engineer. He has more than 15 years of environmental consulting and research experience, primarily in the investigation and remediation of PFAS and bioremediation of chlorinated solvents. His research focused on chlorinated ethene biodegradation and microbiology, including the impact of PFAS on dechlorinating microorganisms. He has previously served as a technical expert for the investigation and remediation of PFAS contamination at numerous sites.

Lauren Weinrich, serves as the Director of Research and Development for American Water, the largest regulated water and wastewater company in the United States. Dr. Weinrich's leadership is characterized by a strong commitment to improving water quality, addressing constituents of concern, and engaging with both internal and external stakeholders to tackle current and future challenges in the water industry. In the laboratory, Dr. Weinrich's team develops methods and utilizes advanced chemistry and data analytics to characterize PFAS and other contaminants. In the field, they assess the occurrence and removal of PFAS through pilots across various states, providing operational

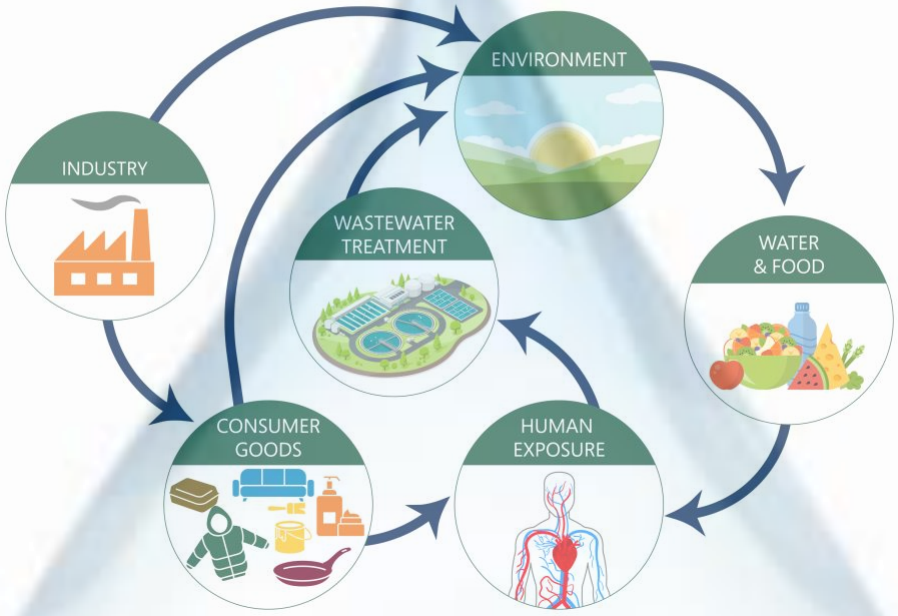
and monitoring guidance to our subsidiaries. They are currently assisting with other regulatory preparations for PFAS, source water assessments, and wastewater monitoring.

Dr. Weinrich served as the Principal Investigator for the Water Research Foundation project titled "PFAS One Water Risk Communication Messaging for Water Sector Professionals." This project, funded by the Water Research Foundation and the American Water Works Association, aimed to develop effective communication materials for the water sector regarding PFAS. She was Co-Principal Investigator for WRF Project 4913, published in 2025, entitled "Investigation of Treatment Alternatives for Short-Chain PFAS," that developed a guidance manual to help water treatment professionals select cost-effective and sustainable methods for removing short-chain PFAS. Dr. Weinrich contributes to several technical advisory workgroups through the American Water Works Association, including the PFAS, Real-Time Source Water Monitoring, and Aesthetic Quality and Perception Committees. She stays close to other cutting-edge research also in her role as Deputy Editor for AWWA's Journal Water Science. She holds a BS degree in biology from Marymount University, MS in Environmental Science & Engineering from UNC – Chapel Hill, and PhD in Environmental Science & Engineering from Drexel University.

Rick Gillespie, Chief Commercial Officer at Revive Environmental, leads spearheads the company's mission to ensure clean water by destroying PFAS. Rick leads the commercial efforts to destroy PFAS in AFFF, landfill leachate, industrial wastewater, and contaminated groundwater. His experience includes AFFF foam transition projects across different industries, including commercial airports, and oil and gas. He also works closely with landfills to combine foam fractionation with supercritical water oxidation (SCWO) to solve high-volume recurring PFAS-laden waste streams.

Previously, Rick spent 24 years at Regenesis, driving sales and business development in remediation and vapor intrusion mitigation. His collaborations with E&C firms, regulatory agencies, private industry, and DoD clients have yielded successful outcomes at over 1,000 sites. Rick began his career at Battelle Memorial Institute, contributing to key USAF initiatives and co-authoring the Air Sparging Design Paradigm. He holds a B.S. in Environmental Science from the University of Oklahoma.

Brent Alspach holds both Bachelor and Master of Science degrees in Civil and Environmental Engineering from Cornell University. Brent joined Arcadis in 1997 and serves as a Vice President and Director of Applied Research. He oversees a program that has conducted approximately $35 million in drinking water, potable reuse, wastewater, and stormwater research funded by the Water Research Foundation, AWWA, the US Bureau of Reclamation, and NASA's Jet Propulsion Lab, among other organizations. Mr. Alspach is a past President of the American Membrane Technology Association (AMTA) past Chair of the AWWA Water Quality & Technology Division Board of Trustees. He also serves on the AWWA Technical & Education Council, as well as on the advisory / editorial boards for the publications AWWA Water Science and Opflow. He has a wide range of water quality and treatment expertise, with a contemporary focus on emerging contaminants (e.g., PFAS, microplastics, and 6PPD-quinone), enhanced recovery of RO systems, ceramic membrane filtration. In accordance with this expertise, Mr. Alspach has testified about microplastics in drinking water before US Congressional hearing. His recognitions include: AWWA Volunteer of the Year; AWWA George Warren Fuller Award; and the AMTA President's Award. And as an ardent baseball fan, he has seen a game in 29 of the 30 active MLB ballparks.



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