

A conversation on sustainable infrastructure for water and health

Tuesday Apr 9, 2024

2:00 - 4:00pm

George Washington University
Lehman Auditorium (SEH B1220)
Science and Engineering Hall
800 22nd Street, NW
Washington, DC 20052



**AMERICAN
ACADEMY**
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AAEES Distinguished Kappe Lecture

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University of South Florida, Tampa, FL, USA
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Reinventing the Toilet for Global Sanitation: The NEWgenerator Resource Recovery Machine

Abstract: Billions of people worldwide suffer from poor sanitation due to lack of wastewater infrastructure. With high CAPEX and OPEX, the conventional approach of centralized wastewater treatment plants served by an extensive sewer system is not an option for many communities. A new classification of modular and pre-fabricated non-sewered sanitation systems (NSSS, ISO 30500) has been introduced as an onsite micro-infrastructure alternative. Developed at the University of South Florida, the NEWgenerator is a solar-powered, modular, automated wastewater treatment and recycling system capable of operating independently from grid power, piped water and sewer. The core technology within the NEWgenerator is the anaerobic membrane bioreactor (AnMBR), capable of handling a wide range of wastewater strengths, intermittent flows, and prolonged shutdowns. The value proposition of the NEWgenerator is that it makes flush toilets possible in off-grid, remote locations. The NEWgenerator was a recipient of the 5th Cade Museum Prize for Innovation and the 2020 USPTO Patents for Humanity Award. This presentation will follow the two-decade journey of the NEWgenerator from concept to development to commercialization, including extended field trials in India (Kerala) and South Africa (KwaZulu-Natal). The presentation will also highlight initiatives to implement the NEWgenerator in disadvantaged communities in the U.S.

Biosketch: Dr. Daniel Yeh is a professor of Civil and Environmental Engineering at the University of South Florida and the PI of the Membrane Biotechnology Lab. He is also a visiting professor at NASA Kennedy Space Center and co-founder of the cleantech startup BioReNEW, Inc. Dr. Yeh's research and teaching interests are in water & wastewater engineering, global water & sanitation, water/energy/food nexus, and life support systems for space travel. Dr. Yeh is keen to communicate and promote environmental engineering to the public and school children through classroom lesson plans, museum exhibits, podcasts, TEDx and Pint-of-Science talks, and late night talk show comedy feature. Dr. Yeh holds degrees from the University of Michigan (BS Natural Resources, BSE Civil Engineering and MSE Environmental Engineering) and Georgia Institute of Technology (PhD Environmental Engineering). Dr. Yeh is a professional engineer, an AAEES board-certified environmental engineer, and a LEED Accredited Professional. He is also a Senior Member of the National Academy of Inventors and a two-time recipient of the Excellence in Innovation Award at USF.

The Kappe Lecture will be immediately followed by...



Kimberly Jones (moderator),
Associate Provost and Professor,
Civil and Environmental Engineering,
Howard University

Panel Discussion:
**Equitable onsite
wastewater
management in
the U.S. –
Challenges and
Opportunities**

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Sherry Bradley, Executive Director,
Black Belt Unincorporated Wastewater
Program, Lowndes County, Alabama



Yun Shen, Asst. Professor,
Civil & Environmental Engineering,
George Washington University



Charles Glass, Director
Maryland Environmental Service



Daniel Yeh, Professor,
Civil & Environmental Engineering,
University of South Florida



- **Directions:** George Washington University, Lehman Auditorium (SEH B1220), Science and Engineering Hall, 800 22nd Street, NW, Washington, DC 20052
- Nearest metro: **Foggy Bottom-GWU** (Blue, Orange and Silver Lines) 2 min walk
- **The event is free but please register** at: <https://www.eventbrite.com/e/gwu-49-a-conversation-on-sustainable-infrastructure-for-water-and-health-tickets-874585417527> (or scan the QR code to the right)
- For more information: Janet Mosby, PEER Consultants, P.C. (Mosbyj@peerpc.com) 202.478.2060 Ext. 1032

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