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RENEWABLE AND SUSTAINABLE ENERGY INSTITUTE

BIG energy seminar series

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Reinventing the Toilet: a global collaboration turning an infrastructure into an appliance

Dr. Shannon Yee

Associate Professor at the G.W.W. School of Mechanical Engineering
at the Georgia Institute of Technology

Date: Thursday, March 16, 2023 10:00 – 11:00AM

Location: SEEC Building, Sievers S228 or Zoom <https://cuboulder.zoom.us/j/97004369138>

Abstract:

Indoor plumbing and sewer sanitation technologies have enabled healthy and productive lives for billions residing in developed nations. However, globally there are ~3.6B people without access to improved sanitation. This is largely because the infrastructure to provide connected sanitary sewers and centralized treatment facilities is too expensive for those living in poverty. For the last decade, the Bill & Melinda Gates Foundation has championed this global equity issue through the Reinvent the Toilet Challenge (RTTC). Through this program, several success stories have emerged resulting in container-sized treatment systems that process waste at the community level. However, the single-user reinvented toilet (SURT) has remained elusive. This SURT essentially needs to do everything that centralized sewage treatment facility does, but within the space constraints of the toilet and washing machine. Additionally, this must be accomplished at a cost that is acceptable to the world's poorest people. With that goal in mind, Prof. Shannon Yee leads the Generation 2 Reinvented Toilet (G2RT) program, where a global team of scientists and engineers are taking a second look at the reinventing the toilet solution space and integrating the best concepts developed across the RTTC program with the goal of realizing a low-cost SURT solution. Come and learn how this large global team is approaching the problem through international collaboration bringing expert engineering to turn an infrastructure into an appliance.

<https://yeelab.gatech.edu/g2rt/>

Bio:

Dr. Shannon Yee is an Associate Professor at the G.W.W. School of Mechanical Engineering at the Georgia Institute of Technology. Dr. Yee joined Georgia Tech in 2014 directly from his PhD at the University of California Berkeley. In the midst of his studies, he joined the US. Dept. of Energy's Advanced Research Projects Agency for Energy (ARPA-E) during its inaugural year as the first ARPA-E Fellow. Dr. Yee completed his MS in Nuclear Engineering in 2008 and his BS in Mechanical Engineering in 2007, both from The Ohio State University. In 2008, he was awarded a prestigious Hertz Fellowship. In 2015, Dr. Yee was selected for an AFOSR Young Investigator Award to develop polymer thermoelectrics. Dr. Yee is the recipient of the 2017 ASME Pi-Tau-Sigma Gold Medal award for "outstanding contributions to the field of Mechanical Engineering in the first decade of one's career." In 2019, Shannon was selected for an ONR Young Investigator Award to develop polymer thermal switches. Most recently, Dr. Yee is directing the Generation II Reinvent the Toilet (G2RT) program supported by the Bill & Melinda Gates Foundation and was recognized as one of [Bill Gate's Heroes in the Field in 2021](#).

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