Bringing Chemistry to Life podcast series

Season 2: **The 2020 C&EN's Talented 12**
Episode 9: **Materials of tomorrow to recycle materials of today**

Episode abstract

Every day, tons of potentially valuable materials are discarded in various waste streams simply because recycling them is more expensive than their recoverable value. Considering that finite resources such as precious metals are among these wastes, the opportunity appears obvious. Wendy Lee Queen, and American expat and passionate baseball player, leads the Laboratory for Functional Inorganic Materials at the EPFL in Lausanne, and has a potential solution. She is one of the leading experts of metal organic frameworks (MOF) and a pioneer of novel composite materials where MOFs and polymers in bead form provide an innovative way to fine tune affinity and selectivity for various chemical species of interest. These can be used to efficiently capture pollutants such as carbon dioxide, but also to recover valuable resources from water waste streams, such as precious metals. Wendy's research is a beautiful story of chemical innovation, where ground-breaking chemistry makes new things possible. And when these new things have the potential to change the way we look at our urban and industrial wastes, this is a moment chemistry is brought to life.

About our guest

Dr. Wendy L. Queen

Assistant Professor, Institute of Chemical Sciences and Engineering, Swiss Federal Institute of Technology, Lausanne (EPFL)

Wendy's group site: https://www.epfl.ch/labs/lfim/queen/

C&EN Talented 12 profile of Wendy: https://cen.acs.org/materials/metal-organic-frameworks/Wendy-Lee-Queen/98/i31

Recent Publications from Wendy:

- Synergistic material and process development: Application of a metal-organic framework, Cu-TDPAT, in single-cycle hydrogen purification and CO2 capture from synthesis gas
- Preparation of Highly Porous Metal–Organic Framework Beads for Metal Extraction from Liquid Streams
- Hydrocarbon separations in a metal-organic framework with open iron (II) coordination sites
- Water adsorption in porous metal–organic frameworks and related materials
- A new post-synthetic polymerization strategy makes metal organic frameworks more stable
- Rapid, Selective Extraction of Trace Amounts of Gold from Complex Water Mixtures with a Metal–Organic Framework (MOF)/Polymer Composite

Wendy's Content Recommendations:

- Clemson Football Hill (a YouTube video about Wendy's favourite college football team)
- Stop Motion Science (a YouTube animation about filtering toxic chromium from water)
- Unexpected Star (a BBC show featuring Wendy's favorite comedian on the topic of fear of flying)
- Man and SIX Rescue Dogs (a YouTube video about what Wendy hopes to do after her career in science)
- Jessie Warren's double play (a YouTube video abouWendy's favorite sport)

This podcast series is available via the following links

ThermoFisher SCIENTIFIC | Available at amazon music | Listen on Apple Podcasts | Listen on Google Podcasts | Subscribe & Listen on Overcast | Listen on Spotify

thermo scientific