



DETECTION // TREATMENT // REGULATION

## EMERGING CONTAMINANTS — S U M M I T —

# **Selective Removal of Ibuprofen Simultaneously in a Nutrient Removal and Recovery Hybrid Ion Exchange (HIX-NP) Process Treating Secondary Municipal Wastewater**

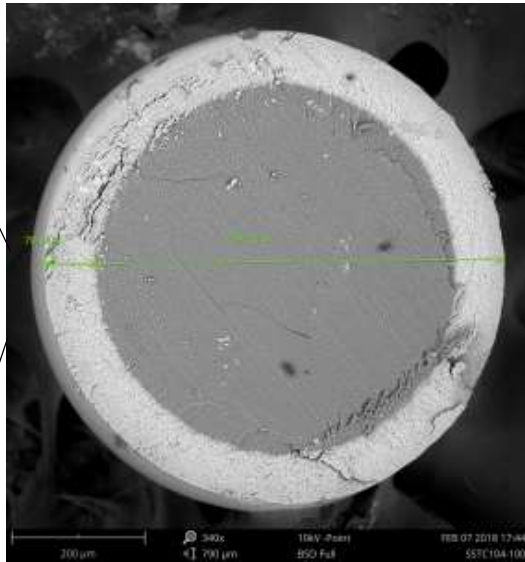
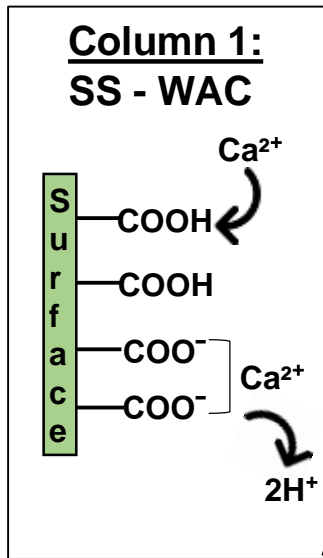
Chelsey Shepsko

*Environmental Engineer, Ph.D.*

GHD Services Inc. and Lehigh University

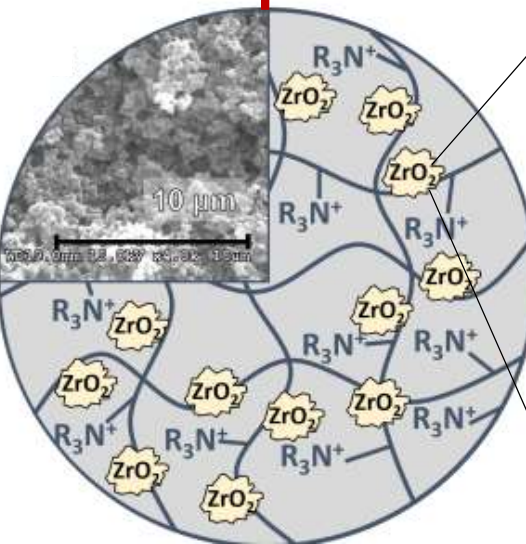
# HIX-NP Process

**Municipal wastewater**



**pH decreases**

**Ca<sup>2+</sup> is picked up by SS-WAC**

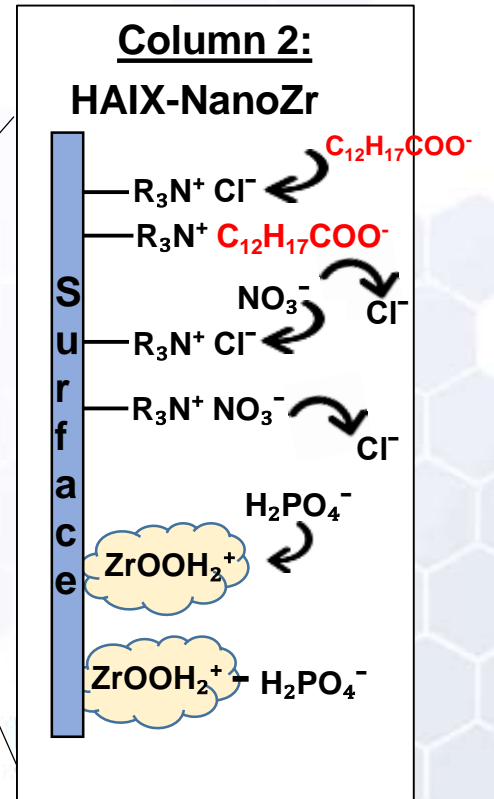


**Treated water**  
**Nutrient Free**  
**PPCPs**  
**Reduced Hardness**



**RO**

**No scaling agents**  
**>80% recovery**



# HIX-NP Recovery

