

**The Department of
Mechanical Engineering**

PRESENTS

Jaeyun Moon, Ph.D.

Assistant Professor

Department of Mechanical Engineering
University of Nevada, Las Vegas**Friday, November 30, 2018**
Bourns Hall A265
11:10-12:00PM**Materials Solutions for Environmental Problems:
Nanomaterials for Water Treatment*****Abstract:***

Global concerns about the environmental sustainability have induced the new technologies development including materials innovation and applications. The materials research has made many contribution in the environmental recovery and protection. Our research group investigate (nano)materials to improve water treatment technologies targeting a variety of pollutants. In this talk, the development of materials used in the treatment processes – adsorption and reduction/oxidation will be discussed. The activated carbons modified with polymer coatings were employed as an adsorbent to remediate hexavalent chromium (Cr (VI)) that is a toxic form of Cr element, resulting in significant improvement of Cr (VI) removal, particularly in high concentration environment. In addition, the findings from our research regarding immobilized nano-scale zero valent iron particles will be presented. Despite great potential of zero valent iron nanoparticles for groundwater remediation, their high tendency for agglomeration reduces surface area and consequently, deteriorate the performance. To address this drawback, the zero valent iron nanoparticles were immobilized in porous medium (e.g. mesoporous silica, activated carbons) for water treatment processes and the materials were characterized in terms of physical-chemical properties and reaction kinetics. This talk will suggest the value in considering advanced materials as a great solution to environmental problems we have, now and in future.

About the Speaker:

Dr. Jaeyun Moon is an Assistant Professor in Mechanical Engineering at the University of Nevada, Las Vegas (UNLV). She obtained her Ph.D. degree from University of California, San Diego and joined UNLV in 2014. Before she started Ph.D. study, she had worked for Samsung Electronics as a senior engineer/manager. At UNLV, she is a principal investigator of 'Energy and Environmental Materials Laboratory' and focusing on study of inorganic nanomaterials and device fabrication for energy applications including thermoelectrics and solar receivers, and for environmental applications, such as water treatment. Her research group has conducted the research projects supported by NSF, DOE, NASA, and industries (Tesla and Hyundai motors).