



Prof. Lucy M. Camacho

“Progress in Membrane Desalination Technology for Water-Food-Energy Systems (FEWS)”

Texas A&M University-Kingsville
Department of Environmental Engineering

Host: Tim Long



Abstract: Traditionally, energy and water issues have been considered independently and food was not even part of the nexus. However, water and energy are interdependent. And both, energy generation and water availability can ensure food supply for generations to come. Energy production and generation require water, as in the case of power plants, which require substantial quantities of water for generating electrical energy. Similarly, water pumping, treatment, and distribution require energy. In the future, threats to the production of energy might result from limited water supplies. Competing demands for water supply by the energy and agricultural sectors may threaten food availability. This threat increases with population growth and the associated increase in water demand.

Based on this scenario, there is an urgent need to treat non-traditional waters to increase the availability of water resources for generation of electricity and food. Non-traditional waters include brackish groundwater and produced water with elevated levels of total dissolved solids (TDS) and/or metals. Current desalination technologies are thermal- or membrane-based and are either too expensive to be implemented or are limited to treat relatively low-TDS brackish groundwater. The presence of scaling minerals and high TDS concentrations in salinity waters require the use of innovative technologies capable of meeting the new desalination challenges. One of the limitations to advance novel desalination technologies is the absence of membranes resistant to scaling and fouling. In this seminar advances in the development of two membrane desalination technologies with the potential to meet these challenges are presented.

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Bio: Dr. Lucy Mar Camacho has more than 10 years of laboratory research expertise in the area of water desalination and innovative water treatment technologies. She is also conducting research on membrane development for Membrane Distillation desalination. Dr. Camacho received her PhD. in Chemical Engineering, from New Mexico State University in 2000 with a minor in Environmental Management. Dr. Camacho completed her M.S. in Electrochemical Engineering Process at Technische Universität Dresden, Germany in 1988, and her B.S. in Chemistry from Technische Universität Dresden, Germany in 1987. This year, Dr. Camacho received a NSF-MRI Award to acquire a Liquid Chromatograph-Inductively-Coupled Plasma-Mass Spectroscopic (LC-ICP-MS) instrument to conduct research on speciation of metal ions in the environment.

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