

## **Abstract of Presentation**

**Presentation Title:**

New Advancement of Seawater Desalination Reverse Osmosis Membranes (SWRO)

**Abstract:**

Reverse osmosis membranes are now widely accepted as one of the key technologies for water treatment. Especially, recent water production amount of seawater desalination increases 15% or more per year for the countries or the areas facing water shortage.

Two technical requirements for SWRO, 1) energy saving and 2) water quality such as boron concentration are existed. Currently, several kinds of boron removal processes with combination of RO membranes are suggested because a different guideline for boron regulation according to a country is adopted.

To obtain new membranes with further excellent performance, scientific research on high boron rejection membranes were performed by the positron annihilation lifetime spectroscopy (PALS) and molecular dynamics (MD) simulations. These studies provided the first announcement on the pore sizes of SWROs as in the range of 5.6 - 7.0 angstroms. Based on these fundamental knowledge, variation of SWRO due to the purpose became a reality.