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**ICCE 2019 PLENARY SPEAKER**

**Professor Mathias Ernst**  
Technical University of Hamburg, Germany

*“Impact of natural organic matter (NOM) on CaSO<sub>4</sub> crystallisation in the reverse osmosis process”*

Sea-and brackish water desalination is currently dominated by reverse osmosis and increasingly applied to address the global challenge of water scarcity. However CaSO<sub>4</sub> crystallisation may interfere practical operation at higher membrane yields as precipitation (so called scaling) can not be controlled by simple pH adjustment. The paper will focus on the various boundaries of gypsum scaling in bulk and surface crystallisation of reverse osmosis and the interaction of terrestrial as well as aquatic NOM during this process. Primarily seen as problematic fouling compounds the present results reveal that certain NOM qualities may show beneficial anti-scalants effects in operation.