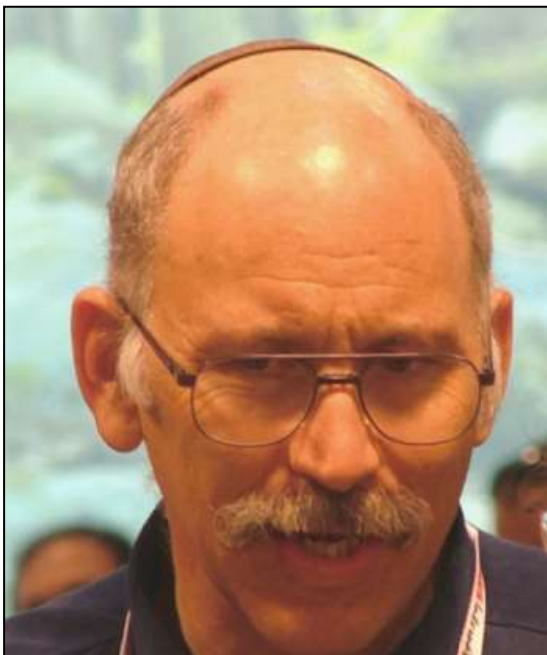


Prof. Jack Gilron

Head of DWT (Desalination and Water Treatment Department)

Research interests



Prof. Gilron's professional activity has been associated with finding new opportunities for introducing membrane technology to achieve water and product recovery from waste-streams and in increasing the recovery in desalination processes. He has worked on waste-streams from special chemicals industries, olive mill wastewater, hypersaline brines for mineral production, among other systems. Fouling studies continue to be another focus of Prof. Gilron's work. Scaling by inorganic materials can limit the recovery from desalination of brackish water and municipal wastewater. Gilron has studied scaling in RO, ED, and membrane distillation systems.

Biofouling is another of the major fouling problems involving membranes in desalination and other forms of drinking and wastewater treatment and can aggravate scaling as well.

Prof. Gilron has studied the interaction between them together with Prof. Y. Cohen (professor at UCLA and adj. prof. at ZIWR) and Prof. Y. Oren.

Prof. Gilron is currently engaged in several new projects to increase recovery from desalination processes. One technology, flow reversal, is presently being commercialized by Rotec Ltd. It has been successfully used to increase recovery from waters with a high content of sparingly soluble salts. The process has been successfully piloted in Israel and the Netherlands (1000 m³/d), and a major demonstration plant (8000 m³/d) was implemented in Singapore that increased recovery from 75 to 90% desalting municipal wastewater. Online, in-situ of onset of scaling can be an important tool to allow timely intervention for prevention of severe scaling. Prof. Gilron has collaborated with two of the key innovators in this field, Prof Y. Cohen (optical) and Prof. A. Greenberg (ultrasonic) to incorporate these detectors as means for triggering the flow reversal process.

Disposal of the brine left over from desalination processes can add significantly to the costs of inland desalination (5-33%), mainly due to the costs of brine evaporation pond construction. Prof. Gilron is part of a team (A. Kedem, Prof. O. Kedem, Y. Volkman, Lesico Ltd) that has created a method (termed WAIV) to increase the evaporation rate from holding ponds without the concomitant risk of drop dispersal associated with spray-enhanced evaporation. It is currently being piloted in Australia, after previous pilots in Israel and Mexico, and future planned pilots in S. America, in industries with large brine volume problems.

Gilron collaborated with other members of the department on hybrid membrane processes to increase recovery by combining RO,ED and UF-aided crystallizers and WAIV (BMBF) which resulted in 97-98% recoveries.

Selective desalination for agriculture is one of the more recent interests of Prof. Gilron, involving novalent selective electro dialysis.

