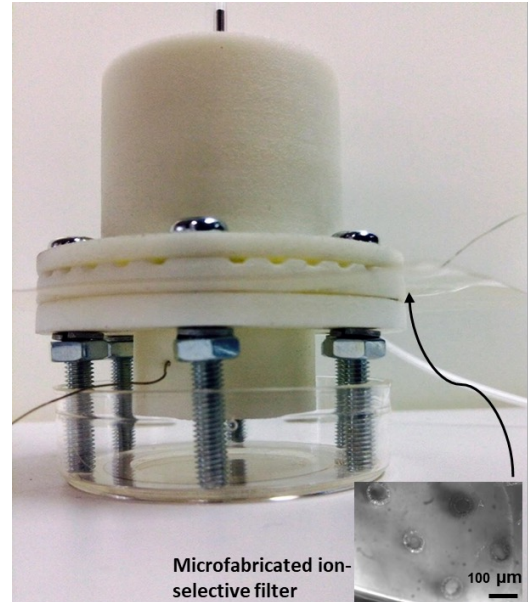


RESEARCH MARKETING SUMMARY

# MICROFABRICATED ION-SELECTIVE FILTER FOR IONS AND MOLECULES

High-throughput separation of particles, ions, and molecules



## SUMMARY

With over 1.2 billion people lacking access to clean water and growing global water scarcity, the demand for cost-effective and energy-efficient desalination technologies is at an all-time high. Reverse osmosis and thermal distillation are energy-intensive methods and vulnerable to scaling and corrosion. Therefore, innovative alternatives to these traditional technologies are needed, with opportunities with a global water filtration market that is projected to reach U\$30 billion by 2030.

Researchers at New York University Abu Dhabi have developed a novel ion-selective filtration membrane designed for the high-throughput separation of particles, ions, and molecules, offering a novel approach in desalination and purification technologies. The technology incorporates micropores (or nanopores), conductive layers, and a voltage-driven ion-selective layer, enhancing filtration efficiency and scalability.

## VALUE PROPOSITION

### Effectiveness

The patented voltage-driven ion-selective layer minimizes fouling, offering a significant energy advantage over reverse osmosis.

### Scalability

The membrane is adaptable for high-throughput applications, overcoming limitations of microfluidic approaches.

### Versatility

Its unique architecture enables the membrane to be used in diverse sectors, including water treatment, industrial processing, and sample preparation.

### Durability

Unlike conventional thermal desalination technologies, the membrane is designed to resist corrosion and scaling, making it ideal for long-term industrial applications.

### Precision

The technology allows for ion, particle and molecule filtration, enhancing efficiency for specialized separation applications.

# Microfabricated ion-selective filter for ions and molecules

## APPLICATIONS AND USES

Compared to Reverse-Osmosis systems and conventional thermal processes, the microfabricated ion-selective membrane offers superior filtration efficiency with significantly lower energy consumption. Its design allows for small-scale deployment, making it a key player in meeting the global demand for fresh water.

This patented technology presents a compelling opportunity for investors in the water-technology, environmental and biotechnology sectors. The global need for sustainable high-sensitivity filtration method continues to grow, and this technology offers a scalable, cost-effective, and energy-efficient solution.

It is ideally suited for:

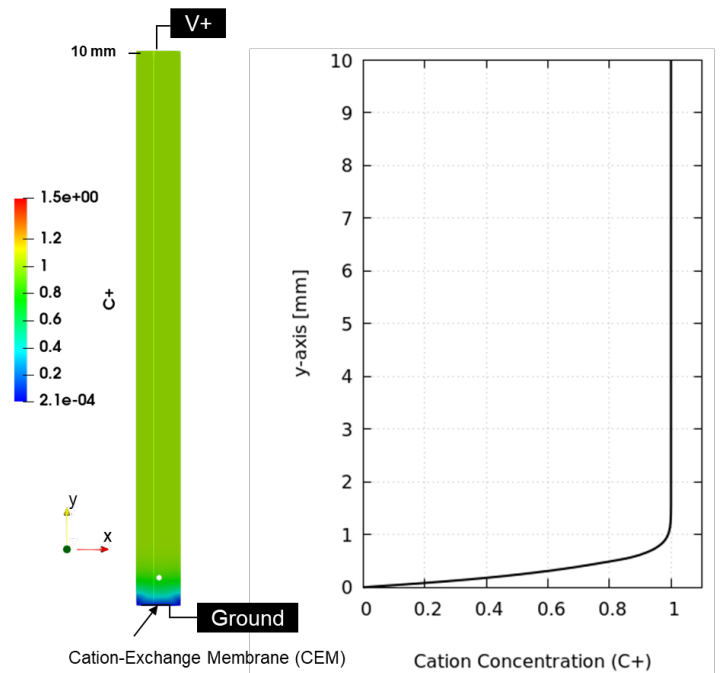
- Desalination.
- Water Filtration.
- Sample preparation.
- Biotechnology.

### ENGAGEMENT OPPORTUNITIES

We are offering opportunities for joint ventures, collaborative pilot studies and licensing with industry partners to further develop and commercialize this technology.

### CONTACT DETAILS FOR ENQUIRIES

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*Ion concentration profile along the vertical y-direction shows a removal of cations at the bottom.*

## PRINCIPAL INVESTIGATOR

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Intellectual Property  
Patent Number: US009956529B2  
Current Assignee: New York University  
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