

# KIAT Global Industrial Technology Cooperation Center

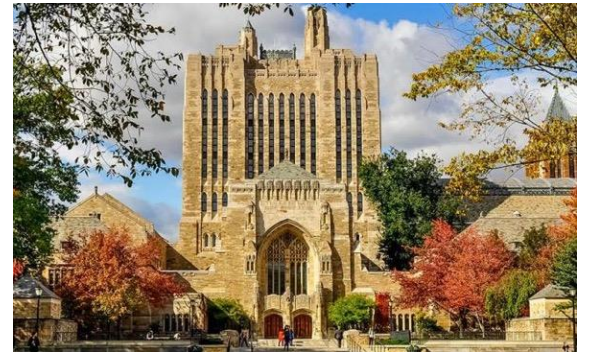
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November 5, 2024

**Jaehong Kim**

Henry P. Becton Sr. Professor of Engineering  
School of Engineering and Applied Science  
School of Public Health  
School of Environment

**Yale**



## Yale to make landmark investments in engineering and applied science, FAS



## Yale to make historic investment in engineering, lower Hillhouse Avenue

A series of planned building projects would transform the School of Engineering & Applied Science, advance Yale's strategy for hastening research breakthroughs.





KOREA – CENTER FOR INDUSTRIAL TECHNOLOGIY – YALE

# Yale Engineering Strategic Research Areas

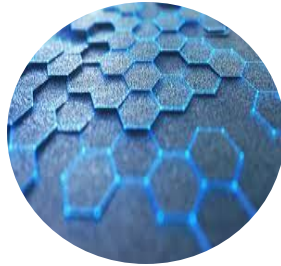
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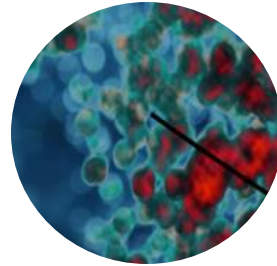
Artificial  
Intelligence



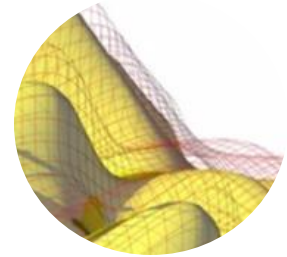
Robotics



Materials  
Science

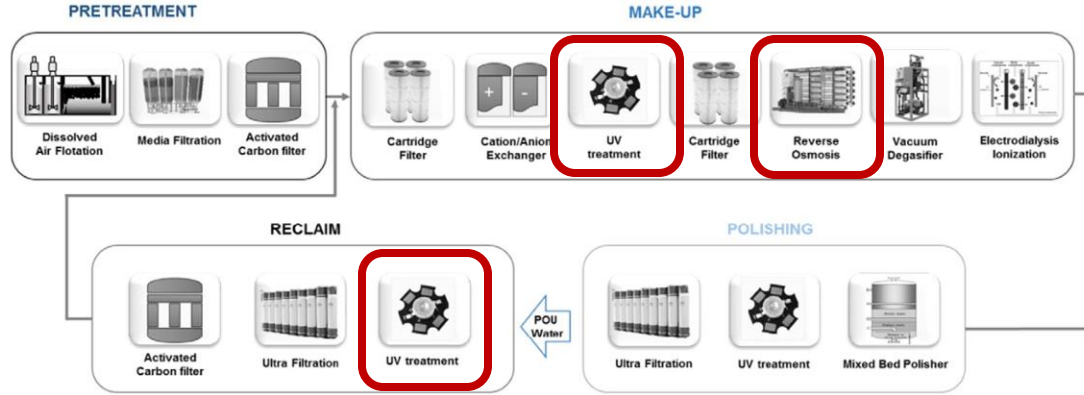


Biological  
Systems

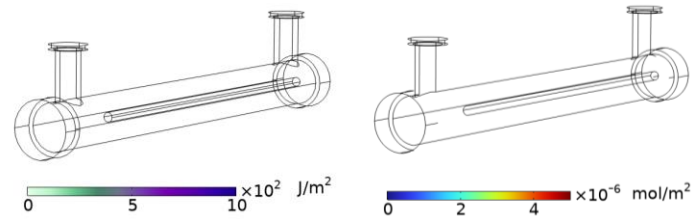


Mathematical  
Modeling &  
Scientific Computation

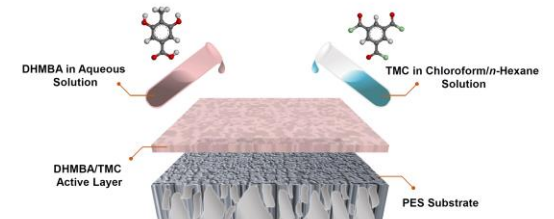
# Development of Low Molecules Control System of Ultrapure Water Plant Using Alternative Water Sources



(Milli-Confined) UV Process Simulation, Optimization, and Fabrication

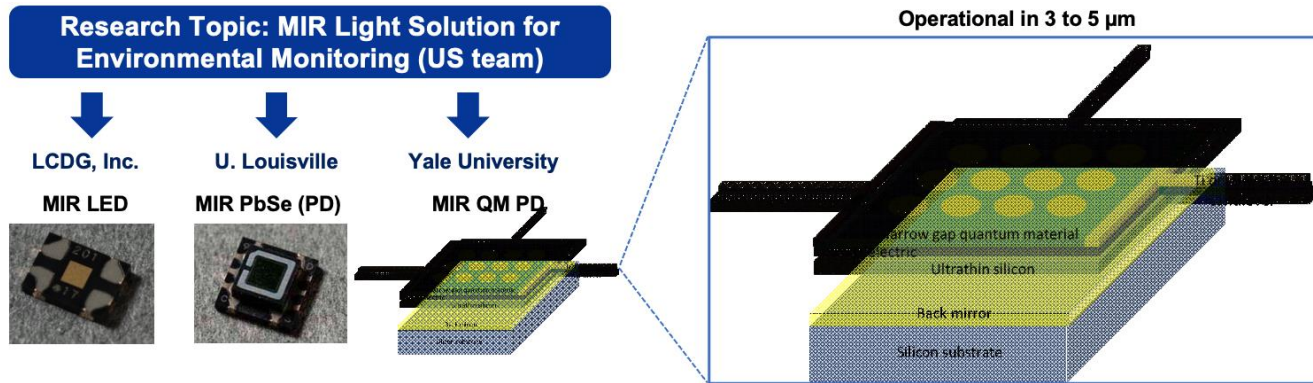


Polyamide/Polyester Reverse Osmosis Membrane for Neutral Solute Rejection



# Development of ultra-low-power, high-reliability gas sensor technology based on mid-infrared optical devices

Development of ultra-low-power, high-reliability gas sensor technology (3-type: CO, CO<sub>2</sub>, and CH<sub>4</sub>) based on mid-infrared optical devices (InAsSb PD, ICLED, and quantum Bolometric PD)

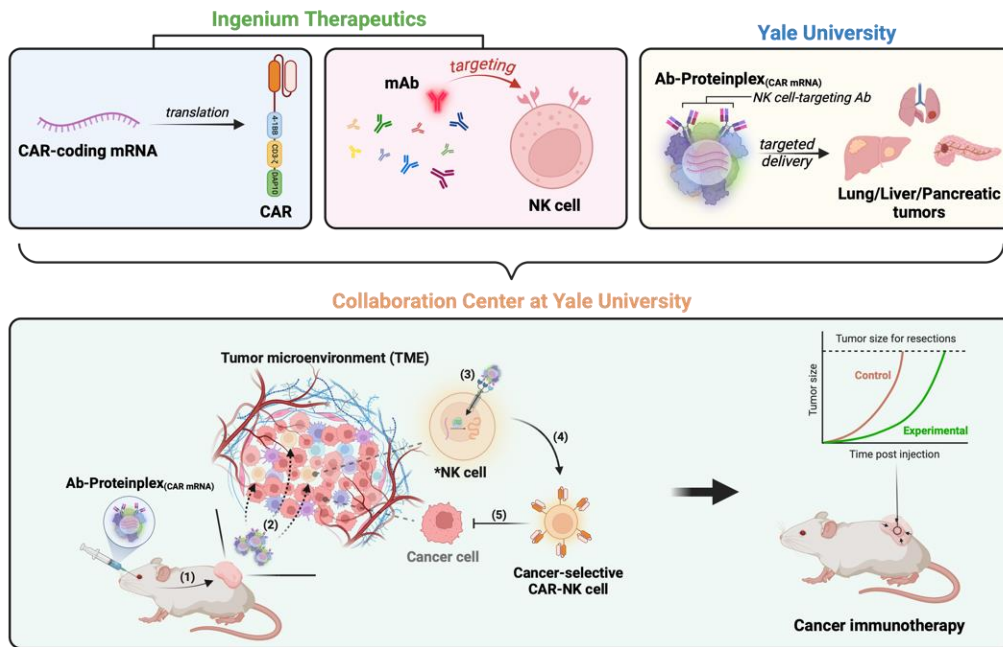
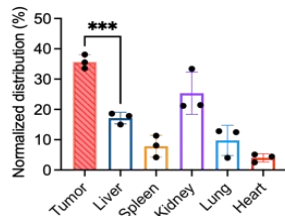
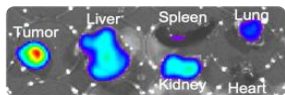
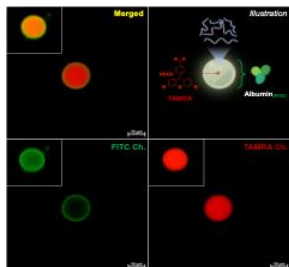


- The bandgap of quantum materials is in the range of 0.25 to 0.35 eV
- Our innovative utilization of both the “photon” and “thermal” detection mechanisms to significantly improve the performance of the photodetection in this unique spectral range
- Standard thin-film silicon will be utilized as the platform for future manufacturing
- To the best of our knowledge, there is no previous IP on the simultaneous utilization of “photon” and “thermal” detection mechanisms

# Targeted in vivo engineering of CAR-NK cells for next-generation cancer immunotherapy



Yale's "Proteinplex" Technology  
15 types of protein combinations



❖ Saltzman Research Group (Yale) will work with Ingenium Therapeutics (Korea) to develop a technology that enables in vivo production of anti-cancer CAR-NK cells for cancer therapy.

➤ Yale's gene delivery technology called "Proteinplex" will be utilized for this project.

**291** Invention Disclosures  
**158** Provisional Patents  
**197** Issued Patents in 2023

# YALE VENTURES

**\$88.6M** Industry-Sponsored  
Projects in 2023

**24** Accelerator Awards  
**18** Major Deals  
**\$153M** Venture Capital in  
2023

## Recent Private Company Partners



**Total 112 in 2023**

## Yale Faculty-led Startup Companies



**Total 14 in 2023**



## Tsai Center for Innovative Thinking at Yale (Tsai CITY)

**270** Innovation Projects  
**1,668** Students  
**600** Mentors in 2023