Devices at the Nanoscale

Joseph Wang
Director, Center of Wearable SensorsChief Editor

CURRENT RESEARCH

Developing nanodevices for advanced biomedical and environmental applications

Imagine tiny robots or machines at the scale of a nanometer that can swim inside the body or in the ocean. In the body, these nanomachines can release drugs more effectively; in the ocean, they can measure contamination levels more accurately. Or, imagine wearable sensors that can safely and efficiently identify human biomarkers. Professor Joseph Wang, Chair of Nanoengineering at the University of California, San Diego, pioneers the developing fields of nanobioelectric, deploying the power of nanotechnology to facilitate practical biomedical and environmental applications. Advancing technology through nanomachines and nanobiosensors, Prof. Wang hopes to enable therapeutic, diagnostic, and environmental tools that have not been available before.

An international leader with over 940 research papers, 35 patents, 38 chapters and 12 books, Prof. Wang directs a nanobioelectronic team of almost 20 researchers working on nanomachines and 20 on nanobiosensors. The team's highly multidisciplinary research combines fundamental studies from different disciplines with forward-looking engineering efforts, including nanomachines, nanosensors, electrochemistry and analytical chemistry. By developing new designs based on new shapes and materials, Prof. Wang and his team hope to accelerate advancements that will have direct applications to benefit society.

Current projects include:

- Advanced Nanomachines for Future Applications: From delivering medicine directly to a cancerous tumor or other diseased tissue to nanosubmarines for cleaning up oil spills and capturing and removing nerve-agent pesticides, the nanomachines carry new functionality and capability that operate on nanomotors generated by...

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AFFILIATION

University of California, San Diego

EDUCATION

- Ph.D. in 1978,Technion--Israel Institute of Technology

AWARDS

- American Chemical Society Awards, 1999 and 2006
- ISI 'Citation Laureate' Award, during 1991-2001
- Heyrovsky Memorial Medal (of the Czech Republic), 1994
- Special Creativity Award, 2008
- Honorary Professor from National University, 2004

RESEARCH AREAS

IOT & Medical Devices, Technology, Materials Science / Physics, Nanotechnology

FUNDING REQUEST

Your contributions will support the continued research of Prof. Joseph Wang and his team at the University of California, San Diego as they forerun the nanobioelectric technology to develop cutting-edge nanomachines and wearable biosensors that will revolutionize the medical and the environmental spheres. Donations for $125K/year can help advance and prove concepts, while $500K/year can help commercialize them. Partner with Prof. Wang's interdisciplinary team to create groundbreaking technology!