

BRIDGING THE GAP

A unique opportunity for entrepreneurs and investors
to hear about six of our most promising technologies
and engage with top researchers
at America's largest science and energy laboratory.



OAK RIDGE NATIONAL LABORATORY

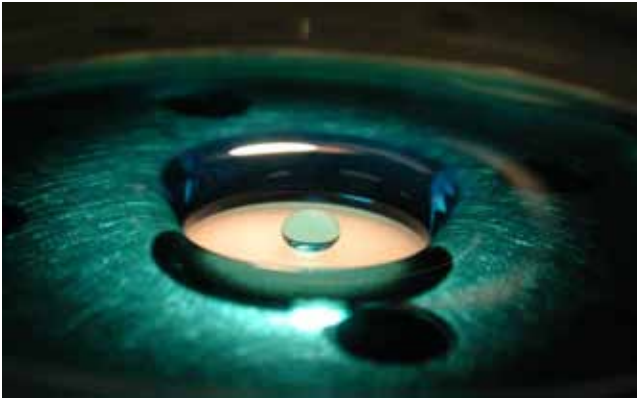
MANAGED BY UT-BATTELLE FOR THE DEPARTMENT OF ENERGY



**Join Us in Oak Ridge, Tennessee
April 5-6, 2011**



BRIDGING THE GAP TECHNOLOGY ABSTRACTS



Superhydrophobic Coatings

Presenter: Shawn Carson

Commercialization Manager: Alex DeTrana

Researcher(s): John T. Simpson

ORNL researchers have developed a variety of materials and processes to produce coatings with superhydrophobic properties. The portfolio includes materials made from three different processes, each having unique capabilities depending on the application. The global market for nanostructured coatings is expected to exceed \$3.5 billion by 2015. There are many potential applications for superhydrophobic coatings, all focused on protecting the coated surface from moisture of any kind.

Robotic Digital Valve

Presenter: John Morris

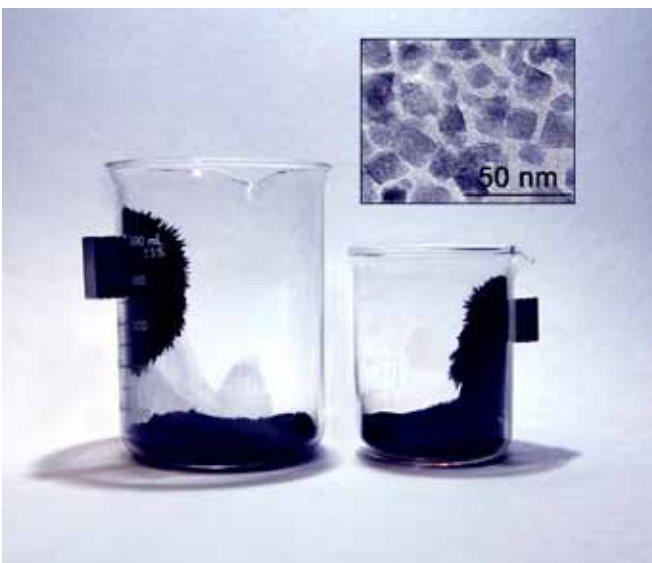
Commercialization Manager: Greg Flickinger

Researcher(s): Randall Lind, Lonnie Love

ORNL researchers have developed a compact, powerful, and noise-free device powered by fluid through a miniature valve. The device controls very low flow at high pressures, permitting it to have finer control of fluid power at a level not currently available. The invention can enable a broad array of new devices in the area of miniature robotics; active prosthetics and orthotics; and, small, high performance haptic interfaces. The worldwide robotics market is expected to reach \$66B by 2025. Specifically, the medical robotics market is currently \$1.5B, expected to grow to \$7B by 2025.



Low Cost Nanoparticles for Solar Cells and Semiconductors



Presenter: Shawn Carson

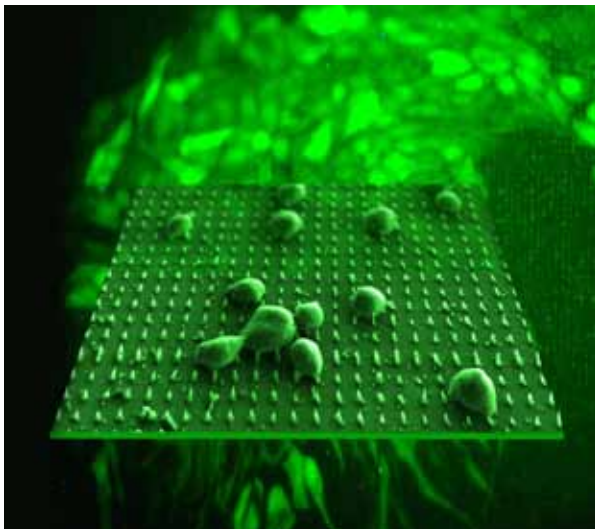
Commercialization Manager: Renae Speck

Researcher(s): Lonnie Love, Tommy Phelps

ORNL researchers have developed a portfolio of technologies around a chemical nanofermentation process where bacteria are cultured and used to create nanoparticles, also known as quantum dots. There are a number of demonstrated applications for this technology portfolio, including materials applied in digital memory and storage, solid state lighting, and the production of solar cells. An application that exemplifies the commercial potential of the technologies in this portfolio is the manufacture of materials used in Thin Film Photovoltaics (PV). The US market for Solar PV cells will exceed \$33.2 billion by 2014. The fastest growing segment of that market is Thin Film PV, which will reach \$17.6 billion by then.



BRIDGING THE GAP TECHNOLOGY ABSTRACTS



Carbon Nanofibers for Intracellular Manipulation

Presenter: John Morris

Commercialization Manager: Greg Flickinger

Researcher(s): Tim McKnight

ORNL researchers have invented a method of aligning carbon nanofibers which can allow them to address individual biological cells. The nanofibers can be modified for specific applications by conventional organic chemistry techniques. This advancement in nanotechnology is important for multiple applications, including biosensors, implantable tissue diagnostics, DNA and pharmaceutical delivery systems, and environmental monitoring and remediation. The Gene Therapy market is expected to grow to \$484MM by 2015.

Piranha

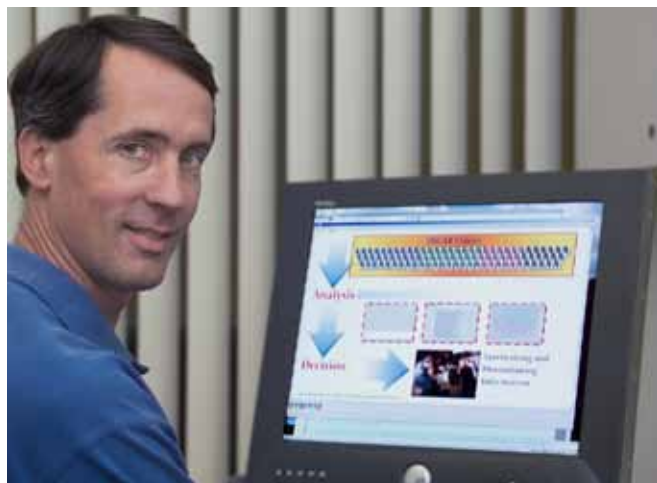
Presenter: Geoff Robson

Commercialization Manager: David Sims

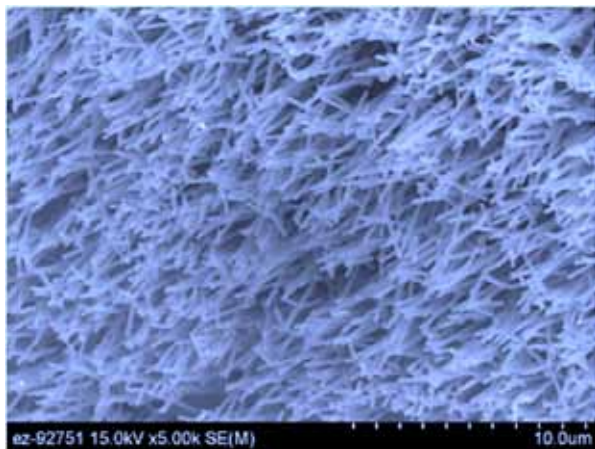
Researcher(s): Thomas Potok, Jim Treadwell

Piranha is agent-based software for gathering and summarizing textual and internet based information. Developed by an award winning R&D 100 team at ORNL, Piranha has enabled creation of software products used by firms ranging from Fortune 100 defense firms to early stage, high growth ventures. Piranha is Java script-based software code that can be delivered via a traditional software model or as software as a service (SAAS). The Piranha platform has already been commercialized in the areas of network security and cyber analytics. Other potential applications include content filtering and organization, topic modeling to mine content

from social media, cyberforensics, and asset management. Identification of a specific “killer application” by a prospective licensee could lead to a non-exclusive license with ORNL and access to the development team through a research partnership.



High Performance Anode Material for Batteries



Presenter: John Morris

Commercialization Manager: Jennifer Caldwell

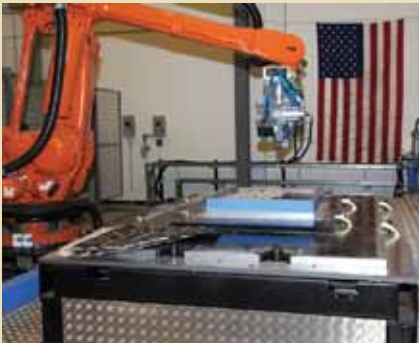
Researcher(s): Sheng Dai, Jun Qu

Scientists at ORNL have developed a new nano-wire anode material for application in batteries that overcomes the limitations of similar anode materials, which have poor capacity retention and/or high production cost. The ORNL material uses a low cost, low temperature, catalyst-free scalable process. This invention offers a distinct advantage in capacity compared to graphite anode used in current Li-ion batteries. The nano-enabled battery market was \$169MM in 2008, but is expected to grow to \$1.13B by 2013. The large capacity auto battery market is expected to have 15x growth in the next 5 years as well. This technology has been proven at the bench top, but a working prototype and demonstration at manufacturing scale has not yet been completed.

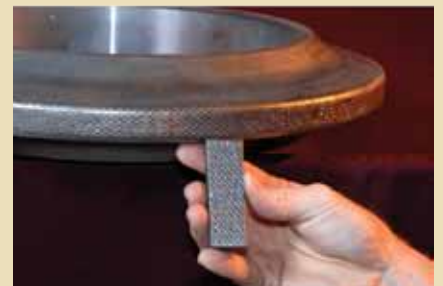


BRIDGING THE GAP RAPID FIRE TOPICS

Join us for a fast-paced introduction to twelve of the most exciting technology portfolios at Oak Ridge National Laboratory. Choose three topics from the following list and engage in Q&A with leading researchers.



- **Advanced Manufacturing**
- **Bioenergy**
- **Carbon Fiber Composites**
- **Energy Storage**
- **High Performance Computing**
- **Carbon Nanotubes**
- **Nuclear Energy**
- **Robotics**
- **Sensors**
- **Smart Grid**
- **Solar Energy**
- **Transportation Electricification**



Register at: <https://www.ornl.gov/partnerships/btregister>

For More Information Contact Tom Rogers at rogerstc@ornl.gov or 865.241.2149