

# Announcing the Fifth Annual **Spark!** Technology Forum

March 25, 2015  
1:00 p.m.  
Tech 2020 Atrium  
1020 Commerce Park Drive  
Oak Ridge, TN

Spark! is a half-day symposium providing an early exciting new technologies available for licensing developed at Oak Ridge National Laboratory and The University of Tennessee. Business leaders, entrepreneurs, and regional stakeholders are invited to learn more about these new technologies, explore commercial opportunities, and provide feedback. Spark will feature the following technologies.

<b>Biotechnology</b>	
Plant Genetic Regulation for the Increase of Ethanol and Other Biochemicals	A global regulator of biosynthesis that produces up to a 250% increase in ethanol yield from woody biomass through a ~50% reduction in plant lignin content.
Novel Supplemental Seed Coatings to Increase Yield	Novel supplemental seed-coating treatments comprised of natural salts, which have shown to both increase soybean and snap bean yields as well as prevent yield loss due to seedling diseases in snap beans.
<b>Computation and Cyber Security</b>	
The Big Data "App" Store: Democratizing Data-Science with Analytics-on-Demand	A suite of "knowledge catalytic" tools to seamlessly integrate intra and inter-enterprise data sources to extract actionable nuggets (patterns and behaviors) previously not discovered due to physical and logical separation of datasets. Used to speed up the pattern discovery (feature extraction) process and the pattern recognition (learning) process in an era of big data across disparate databases.
SITU: Real-Time Situational Understanding And Discovery Of Cyber Attacks	A platform for cyber-attack discovery and situational understanding, which utilizes unsupervised, probabilistic anomaly detection and streaming visualization. Current technologies can only identify known attacks. SITU can identify atypical activity indicative of malicious behavior.
<b>Materials and Materials Processing</b>	
CF8C-Plus Steel	A new cost-effective high-performance heat-resistant steel that was recently included in the ASME Boiler and Pressure Vessel Code. CF8C-Plus steel can meet the demanding design specifications for chemical/petrochemical production systems, gas-turbine markets, larger land-based gas turbine engines, the exhaust component market, and high performance alloys.
Low Cost Controlled Morphology Metal-Oxides For Multifunctional Coatings	A new process for fabricating and depositing high-value metal-oxide films such as indium tin oxide. These films can be used in a broad range of applications including transparent electronics, smart windows, high-density magnetic memory, and other coatings.
Gas-Phase Thermochemical Separation of Rare Earth Elements	A new process for separating and purifying rare earth elements needed for electronics that, compared to conventional solution-state methods, reduces the processing time from a week to around 8 hours, achieves up to 99.9999% purity, and is more environmentally friendly than current methods.
<b>Sensor and Detector Systems</b>	
Biometric Eye Model And Ray Tracing For Improved Iris Recognition	A new biometric targeted eye model and a method to reconstruct the off-axis eye to its frontal view allowing for recognition using existing methods and algorithms. This expands the reliability of the biometric with the recognition of non-ideal iris images, such as off angle images.
High-Gradient Permanent Magnetic Separator For Particle Collection	A new technology to monitor and capture airborne nanoparticles. This device uses a high-gradient permanent magnet to efficiently detect, collect, and separate nano-scale particles in air and water.
Portable Radiation Detector	A new radiation detector that not only alerts a user that radioactive material is nearby, but also indicates the direction of the source material. The device is low cost and is small enough to be portable or vehicle mounted.
Simple Optical Sensor for Biodiesel Contaminant in Fuels	A thin film sensor with high sensitivity towards biodiesel contamination in fuel. The technology provides a fast, inexpensive and portable method for rapid on-site detection of biodiesel contaminant in petroleum based fuels.