

2012  
INNOVATION &  
INTELLECTUAL PROPERTY  
Celebration



# diving into innovation



Sandia National Laboratories



Sandia National Laboratories is a multi-program laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000. SAND No. 2012-XXXX P

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## UP & COMING INNOVATORS

Nominated by center Directors for displaying enormous potential for impactful innovations, entrepreneurial talent, and unique solutions to complex scientific challenges

### **Titus Appel**

- Center 6600 Nomination

### **Marie Arrieta**

- Center 6800 Nomination

### **Laura Biedermann**

- Center 6800 Nomination

### **Robert Bondi**

- Center 1300 Nomination

### **Jim Carroll**

- Center 5900 Nomination

### **Malcolm Carroll**

- Center 1700 Nomination

### **Nathan Crane**

- Center 1500 Nomination

### **Kristina Czuchlewski**

- Center 5300 Nomination

### **Tim Flanagan**

- Center 1300 Nomination

### **Russell Gayle**

- Center 6100 Nomination

### **Ross Hymel**

- Center 6800 Nomination

### **Bob Kaplar**

- Center 6100 Nomination

### **Mark Kinnan**

- Center 6600 Nomination

### **Richard Murphy**

- Center 1400 Nomination

### **Jason Neely**

- Center 1600 Nomination

### **Silpan Patel**

- Center 5300 Nomination

### **Phillip Reu**

- Center 1500 Nomination

### **Mark Rigali**

- Center 6900 Nomination

### **John Sandusky**

- Center 5700 Nomination

### **Jonathan Shelton**

- Center 2600 Nomination

### **Mike Siegal**

- Center 1100 Nomination

### **Heidi Smartt**

- Center 6800 Nomination

### **Tyler Smith**

- Center 2100 Nomination

### **Bryce Smith**

- Center 2900 Nomination

### **Jiann-Cherng Su**

- Center 6900 Nomination

### **Vincent Urias**

- Center 9500 Nomination

### **Yongliang Xiong**

- Center 6200 Nomination

### **David Zage**

- Center 9500 Nomination

August 30<sup>th</sup>, 2012



## CELEBRATING OUR SPIRIT OF INNOVATION

Tonight's celebration is hosted by Sandia's Industrial Partnerships Team. We are pleased to announce the 2011 Patent Inventor, Copyright Author and this year's Director - nominated Up & Coming Innovator awards. We would like to welcome you in joining us to celebrate the innovative spirit and intellectual property generation that is a hallmark of our institution.

**"Diving into innovation"** is our theme for the evening to celebrate the enthusiasm and dedication of our innovative staff in this wonderful venue. Those who are being recognized tonight help make Sandia a unique environment for scientific discovery and engineering, allowing us to fulfill our important and honored national security missions.

## OUR PRESENTERS



**Mark Allen** is tonight's Master of Ceremonies and manages the Intellectual Property Management, Alliances and Licensing department at Sandia.



**David Sandison** is the Senior Manager of the MESA Fabrication Unit and is our honored presenter of this evening's patent awards.



**Pete Atherton** is the new Senior Manager of Industry Partnerships and will be presenting the copyright awards for tonight's event.



**Julia Phillips** is the Director and Deputy CTO of the Research Strategy & Partnerships division and will be presenting the Up & Coming Innovator awards.



**Steve Rottler** is Sandia's Chief Technology Officer and Vice President of Science and Technology. Rottler will be addressing tonight's attendees and offering his congratulations to all of our awarded Inventors, Authors, and Innovators.



## THE PROGRAM

7:00 pm

### Welcoming Remarks

Mark Allen

*Manager, IP Management, Alliances & Licensing*  
Sandia National Laboratories

7:05 pm

### Dinner Served

7:40 pm

### Key Note Speaker

Dan Sanchez

*Senior Program Manager*  
Department of Energy & NNSA

7:50 pm

### Patent Awards

David Sandison

*Senior Manager, Microsystems Science, Technology & Components*  
Sandia National Laboratories

8:15 pm

### Copyright Awards

Pete Atherton

*Senior Manager, Industry Partnerships*  
Sandia National Laboratories

8:30 pm

### Up & Coming Innovator Awards

Julia Phillips

*Director & Deputy CTO, Research Strategy & Partnerships*  
Sandia National Laboratories

8:45 pm

### A Few Words from Our CTO

Steve Rottler

*CTO & Vice President, Science & Technology*  
Sandia National Laboratories

8:50 pm

### Thank You Give Away & Closing Remarks

*\*Photographer available for pictures*

### Howland Jones

- *imageMCR*  
- *rapidMCR*

### Geoffrey Klise

- *Algae Biofuels Co-Location Assessment Tool*

### Kevin Linker

- *MicroHound Drawings Package*

### Howard Passell

- *Algae Biofuels Co-Location Assessment Tool*

### Gregory Poulter

- *imageMCR*  
- *rapidMCR*

### Jesse Roach

- *Algae Biofuels Co-Location Assessment Tool*

### Michael Sinclair

- *ShowMe3D*

### Kenneth Smith

- *MicroHound Drawings Package*

### Juan Torres

- *Energy Surety Microgrid System Design*

### Victor Yarberry

- *MEMS Pro Design Kit*

## COPYRIGHT AWARDEES

Honored for assertion of original software or copyright works in calendar year

### David Aldridge

- FDEM

### Robert Anderson

- CamCal  
- ESMART

### Charles Andraka

- WickSolve Beta

### Daniel Barnette

- eCo-PilotDB

### Jon Bradley

- RTOSPlanner

### Robert Brocato

- Sandia Golden SAW ASIC (SGSA)

### Larry Bruskas

- Gamma

### Charles Brusseau

- MicroHound Drawings Package

### Daniel Dolan

- SIRHEN

### Omar Garcia

- imageMCR  
- rapidMCR

### Vincent Hietala

- Sandia Golden SAW ASIC (SGSA)

### Michael Hightower

- Energy Surety Microgrid System Design

### Mark Howard

- HE-2 Dart CAD Package

## TONIGHT'S KEY NOTE SPEAKER



### Dan Sanchez

Senior Program Manager, DOE & NNSA

Dan Sanchez serves on the Sandia Site Office's (SSO) Senior Leadership Team and is responsible for the oversight of non nuclear weapon national security programs and research strategy conducted at Sandia National Laboratories. He is also responsible for assuring mission execution across a broad range of national security programs, including

Energy, Climate and Infrastructure Security; International, Homeland, Nuclear Security; and Defense Systems and Assessments mission programs.

Sanchez began his career in 1985 at Los Alamos National Laboratory, assigned to Life Sciences Program and the Weapons Subsystems Program moving to IBM's Directorate in 1990. He joined the U.S. Department of Energy in 1992 and has held numerous technical staff positions and progressively increased responsibility in a broad range of program and senior management positions throughout his career. Sanchez's has over 25 years of experience in the national security enterprise, working at multiple U.S. Department of Energy sites, including Sandia, Los Alamos, Livermore, Hanford, and Headquarters in Washington, DC.

Sanchez has extensive experience in Applied Energy Technologies and Science Programs, Nuclear Energy, Energy Efficiency and Renewable Energy, Critical Infrastructure, Interagency Work for Others, Intelligence Programs, Technology Transfer, Intellectual Property and Licensing, Strategic Partnerships, Defense Nuclear Nonproliferation, and Laboratory Directed Research and Development. He holds degrees in Electrical Engineering from New Mexico State University, is actively engaged in various community and professional societies, councils and boards, and we are delighted to introduce him as tonight's keynote speaker.

## DIVING INTO INNOVATION

Celebrating the thirst for, and inspiration of, innovation at Sandia National Laboratories

“ It’s an incredibly exciting time for tech transfer in the Department of Energy... It’s an amazing opportunity to help this country and help scientific discovery. ”

-KARINA EDMONDS

“ We are trusted by the taxpayers to do research and we owe it to them to be strategic about IP and the role it can play in the accomplishment of our missions. We have much to offer the country ”

-PAUL HOMMERT

“ The research and development programs, the potential impact they have, and the contribution they make at the frontiers of science and engineering make me extraordinarily proud to be an employee at Sandia. ”

-STEVE ROTTLER

### Steven Thoma

- Single-Layer Transition Metal Sulfide Catalysts

### Chris Tigges

- Microfabricated Linear Paul-Straubel Ion Trap

### Bert Tise

- Radar Transponder Operation with Compensation for Distortion Due to Amplitude Modulation

### Steven Todd

- Dual Initiation Strip Charge Apparatus and Methods for Making and Implementing the Same  
- Projectile-Generating Explosive Access Tool

### Frank Trowbridge

- Methods for Batch Fabrication of Cold Cathode Vacuum Switch Tubes

### Mark Tucker

- Enhanced Toxic Cloud Knockdown Spray System for Decontamination Applications  
- Reduced Weight Decontamination Formulation Utilizing a Solid Peracid Compound for Neutralization of Chemical and Biological Warfare

### Charles Walker

- Methods for Batch Fabrication of Cold Cathode Vacuum Switch Tubes

### Kurt Wessendorf

- Electrode Array for Neural Stimulation

### David Wheeler

- Weak-Link Capacitor

### Patrick Xavier

- Clearance Detector and Method for Motion and Distance

### Pin Yang

- Electrode Array for Neural Stimulation

### Esteban Yepez

- Mountable Eddy Current Sensor for In-Situ Remote Detection of Surface and Sub-Surface Fatigue Cracks

### Dennis Youshison

- Porous Nuclear Fuel Element for High-Temperature Gas-Cooled Nuclear Reactors

### Ralph Young

- Wavelength-Tunable Optical Ring Resonators

**Dana Powers**

- Alloy Nanoparticle Synthesis Using Ionizing Radiation

**Dennis Roach**

- Mountable Eddy Current Sensor for In-Situ Remote Detection of Surface and Sub-Surface Fatigue Cracks

**Alex Robinson**

- Microfabricated Field Calibration Assembly for Analytical Instruments

**Phillip Rodacy**

- Microfabricated Field Calibration Assembly for Analytical Instruments

**John Sandusky**

- Scannerless Laser Range Imaging Using Loss Modulation

**Randal Schmitt**

- Modular Initiator with Integrated Optical Diagnostic  
- Passive Background Correction Method for Spatially Resolved Detection

**Eric Shaner**

- Tunable Surface Plasmon Devices

**Katherine Simonson**

- Image Registration with Uncertainty Analysis

**Robert Simonson**

- Microfabricated Field Calibration Assembly for Analytical Instruments

**Erik Skogen**

- Optical NAND Gate  
- Optical NOR Gate

**Jeffry Sniegowski**

- Micromachined Cutting Blade Formed from {211}-Oriented Silicon

**Chad Staiger**

- Hybrid Membrane--PSA System for Separating Oxygen from Air

**Hartono Sumali**

- Piezoelectric Energy Harvester Having Planform-Tapered Interdigitated Beams

**Donald Susan**

- Method for Hermetic Electrical Connections

**Alexander Tappan**

- Nanocomposite Thermite Ink

**Anna Tauke-Pedretti**

- Optical NAND Gate  
- Optical NOR Gate

**PATENT AWARDEES**

Honored for patents that issued in calendar year 2011

**Kathleen Alam**

- Modular Initiator with Integrated Optical Diagnostic

**Andrew Allerman**

- Aluminum Nitride Transitional Layer for Reducing Dislocation Density and Cracking of Aigan Epitaxial Films

**Rita Betty**

- Enhanced Toxic Cloud Knockdown Spray System for Decontamination Applications

**Matthew Blain**

- Microfabricated Linear Paul-Straubel Ion Trap

**Gregory Bogart**

- Weak-Link Capacitor  
- Nanostructure Templating Using Low Temperature Atomic Layer Deposition

**Jamey Bond**

- Method for Hermetic Electrical Connections

**Darren Branch**

- Simultaneous Sample Manipulation and Sensing Using Surface Acoustic Waves  
- Active Micromixer Using Surface Acoustic Wave Streaming

**Jeffery Brinker**

- Method of Making Dense, Conformal, Ultra-Thin Cap Layers for Nanoporous Low-K ILD by Plasma Assisted Atomic Layer Deposition

**Malcolm Carroll**

- Lateral Conduction Infrared Photodetector

**Mathias Celina**

- Process for Epoxy Foam Production

**Stephen Conrad**

- Method and System for Conserving Power in a Telecommunications Network During Emergency Situations

**Mary Crawford**

- Aluminum Nitride Transitional Layer for Reducing Dislocation Density and Cracking of Aigan Epitaxial Films

**Jennifer Dellinger**

- Electrode Array for Neural Stimulation

**Frank Delnick**

- Battery Components Employing a Silicate Binder

**Shawn Dirk**

- Weak-Link Capacitor

**Armin Doerry**

- Generating Nonlinear Chirp Radar Signals by Multiple Integrations

**Michael Dugger**

- Method for Lubricating Contacting Surfaces

**Cy Fujimoto**

- Poly(Phenylene)-Based Anion Exchange Membrane

**Jill Glass**

- Method for Hermetic Electrical Connections

**Robert Grubbs**

- Nanostructure Templating Using Low Temperature Atomic Layer Deposition

**Scott Hemmert**

- Multiple Network Interface Core Apparatus and Method

**Michael Hibbs**

- Poly(Phenylene)-Based Anion Exchange Membrane

**Steven Highland**

- Vehicle Assisted Harpoon Breaching Tool

**Dale Huber**

- High-Yield Synthesis of Brookite TiO<sub>2</sub> Nanoparticles

- Magnetic Agglomeration Method for Size Control in the Synthesis of Magnetic Nanoparticles

**Juan-Carlos Jakaboski**

- Dual Initiation Strip Charge Apparatus and Methods for Making and Implementing the Same  
- Projectile-Generating Explosive Access Tool

**Rick Kellogg**

- Piezoelectric Energy Harvester Having Planform-Tapered Interdigitated Beams

**Jin Kim**

- Lateral Conduction Infrared Photodetector

**Daniel Koleske**

- Aluminum Nitride Transitional Layer for Reducing Dislocation Density and Cracking of Aigan Epitaxial Films

**Stephen Lee**

- Aluminum Nitride Transitional Layer for Reducing Dislocation Density and Cracking of Aigan Epitaxial Films

**Jonathan Leonard**

- Enhanced Toxic Cloud Knockdown Spray System for Decontamination Applications

**Kevin Linker**

- Microfabricated Linear Paul-Straubel Ion Trap

**Daniel Lucero**

- Enhanced Toxic Cloud Knockdown Spray System for Decontamination Applications  
- Powder Dispersion System

**Gregory Lyons**

- For Current Viewing Resistor Loads

**Michael Mangan**

- Microfabricated Linear Paul-Straubel Ion Trap

**Ronald Manginell**

- Microfabricated Field Calibration Assembly for Analytical Instruments

**Jeff Mason**

- Concurrent Signal Combining and Channel Estimation in Digital Communications

**Todd Monson**

- High-Yield Synthesis of Brookite TiO<sub>2</sub> Nanoparticles

**Stephen Montague**

- Micromachined Cutting Blade Formed from {211}-Oriented Silicon

**Matthew Moorman**

- Microfabricated Field Calibration Assembly for Analytical Instruments

**Tina Nenoff**

- Alloy Nanoparticle Synthesis Using Ionizing Radiation

**Gregory Nielson**

- Optical Waveguide Device with an Adiabatically-Varying Width  
- Wavelength-Tunable Optical Ring Resonators

**James Ohlhausen**

- Method for Lubricating Contacting Surfaces

**Murat Okandan**

- Electrode Array for Neural Stimulation

**Richard Ormesher**

- Concurrent Signal Combining and Channel Estimation in Digital Communications  
- Radar Transponder Operation with Compensation for Distortion Due to Amplitude Modulation

**James Pacheco**

- Vehicle Assisted Harpoon Breaching Tool

**Heather Pennington**

- Powder Dispersion System

**Stephen Polisar**

- Dual Initiation Strip Charge Apparatus and Methods for Making and Implementing the Same