

2013

**National Academy  
of Inventors<sup>®</sup>  
2<sup>nd</sup> Annual  
Conference**

**February 21 - 22  
Tampa, Florida**

*Embassy Suites Hotel/Busch Gardens  
at the USF Research Park*



NATIONAL ACADEMY OF INVENTORS

EVERY PHOTO IS WORTH A THOUSAND WORDS.

# OURS IS WORTH A BILLION DOLLARS.



This region seen above by satellite looked a lot different in 1995 before our universities joined hands and created the Florida High Tech Corridor Council to grow high tech industry and employment. Today (at right) it shines brighter than ever before with high tech employment at an all-time high. In fact, a recent study showed the Florida High Tech Corridor ranked as the fourth largest tech hot spot for jobs.

Thanks to the Corridor's Matching Grants Research Program, Florida's investment of \$55 million has created 1,200 applied research project partnerships with 350 companies with a verified downstream impact of more than \$1 billion generated from sales contracts, patents, federal and other grants ... not to mention the jobs our partner companies are creating.

[www.FloridaHighTech.com](http://www.FloridaHighTech.com)



A regional economic development initiative of:





## UNITED STATES PATENT AND TRADEMARK OFFICE

COMMISSIONER FOR PATENTS

Paul R. Sanberg, Ph.D., D.Sc.  
President, National Academy of Inventors  
Vice President for Research and Innovation  
University of South Florida  
3702 Spectrum Boulevard, Suite 175  
Tampa, Florida 33612-9444

Dear Dr. Sanberg:

On behalf of the United States Patent and Trademark Office (USPTO), I would like to express our heartfelt gratitude to the National Academy of Inventors (NAI) for its ongoing collaboration with USPTO initiatives such as our regional Independent Inventor Conferences and the Innovation Expo and to extend our appreciation of the NAI's mission to encourage innovation and recognize inventors.

Since its formation, the NAI has played a significant role in the inventor communities associated with universities and non-profit research institutes. Through its Journal of Technology and Innovation, the NAI disseminates important information that adds to the global body of technological literature. The many symposia and events the academy sponsors throughout the year raise awareness of the essential role that intellectual property plays in the technological ecosystem. By serving as an indispensable resource for innovators based in our nation's superb research institutions, the NAI makes meaningful contributions to both innovation and the American way of life.

The USPTO has found an important friend in the NAI, one whom we can call on for collaboration and support as we discharge our own mission to advance and protect innovation. I look forward to a lasting relationship between the USPTO and the NAI, one that will continue to benefit both of our organizations, the innovation community, and the American people as a whole.

Thank you for all that you do!

Warm regards,

A handwritten signature in cursive script that reads "Peggy Focarino".

Margaret (Peggy) Focarino  
Commissioner for Patents  
U.S. Patent and Trademark Office

## **Welcome to the 2<sup>nd</sup> annual conference of the National Academy of Inventors®**

Distinguished Colleagues:

It is my pleasure to welcome you to the second annual meeting of the National Academy of Inventors (NAI), hosted again by the University of South Florida (USF) Chapter. Our Charter Member Institutions are together again, meeting new members and reconnecting with colleagues from last year. Our time together sets the stage for our continued growth and future as an organization. We are grateful to our sponsors for their support in making this conference possible.

We are pleased to welcome both member and non-member participants to the conference. Founded in 2010, the NAI now has 54 Charter Member Institutions (CMI) and two international affiliates, up from 30 this time last year, and more than 2,000 individual inventor members. We thank our CMIs for their vision and willingness to be early leaders in our young organization. We congratulate our members for your accomplishments in contributing innovative technology within your areas of expertise.

This conference, open to all academic and non-profit research institutes, brings together the research community to deliberate on the translation of science and technology within the academic community, and for the benefit of society. We thank all of our presenters, panelists, co-chairs, and the conference program committee. We are delighted to have Dr. Robert S. Langer as our keynote speaker on Thursday, and look forward to hearing his insights on innovation.

We are honored to have Margaret A. Focarino, U.S. Commissioner for Patents, to induct our NAI Charter Fellows, following her keynote address at Friday's luncheon. We greatly value the growing relationship between the NAI and the USPTO. In addition to a number of initiatives in which we are collaborating, the USPTO contributes an article to every issue of our quarterly journal, *Technology and Innovation – Proceedings of the National Academy of Inventors*. Invited papers from this conference will be published in our journal, now in its fourth year.

This conference marks a special milestone in our growth as an organization, as we induct our first class of NAI Fellows. Our distinguished Fellows Selection Committee has confirmed 101 innovators to NAI Charter Fellow status, representing 56 prestigious research universities and non-profit research institutes. Collectively, the new Fellows hold more than 3,200 U.S. patents.

Included in the Charter class are eight Nobel Laureates, 14 presidents of research universities and non-profit research institutes, 53 members of the National Academies (National Academy of Sciences, National Academy of Engineering, Institute of Medicine), 11 inductees of the National Inventors Hall of Fame, two Fellows of the Royal Society, five recipients of the National Medal of Technology and Innovation, four recipients of the National Medal of Science, and 31 AAAS Fellows, among many other major awards and distinctions. It is a remarkable group, and we are honored to have many of the Fellows attending the conference.

The NAI is intended to be an arena where innovation and entrepreneurship leading to local and national economic development is recognized, honored and cultivated in the academic world. We applaud the efforts of our Charter Member Institutions and our inventor members. We are growing rapidly and look forward to an exciting 2013. We appreciate your participation in the National Academy of Inventors and thank you for being part of our second annual conference.

Sincerely



Paul R. Sanberg, Ph.D., D.Sc.  
President, National Academy of Inventors



## Summary Agenda

### Wednesday, February 20, 2013

- 3:00 – 7:00 PM Early Conference Check-in
- 5:00 – 7:00 PM NAI Board of Directors Meeting (invitation only)
- 7:00 – 9:00 PM NAI President's Opening Reception (all are invited to attend)

### Thursday, February 21, 2013

- 6:00 AM – 5:00 PM Conference Check-in
- 8:00 AM – 12:30 PM Refreshments provided
- 9:00 – 9:15 AM General Session
- 9:15 – 10:15 AM Session A
- 10:30 AM – 12:00 PM Panel 1: USPTO
- 12:00 – 1:40 PM Luncheon featuring Keynote Address by Robert S. Langer, David H. Koch Institute Professor, Massachusetts Institute of Technology
- 1:40 – 2:00 PM Break
- 2:00 – 4:30 PM Session B (refreshments provided)
- 4:30 – 5:30 PM Break
- 4:30 – 6:00 PM Guided Bus Tours of USF campus
- 5:30 – 7:30 PM Reception in the Galleria (heavy hors d'oeuvres and cash bar)

### Friday, February 22, 2013

- 6:00 AM – 4:00 PM Conference Check-in
- 8:00 – 8:45 AM *Technology and Innovation* Journal Editorial Board Breakfast & Meeting (invitation only)
- 8:00 AM – 12:30 PM Refreshments provided
- 9:00 – 10:00 AM Session C
- 10:00 – 10:30 AM Keynote Session: *State of the Academy* by NAI President Paul R. Sanberg
- 10:30 – 11:20 AM Open Forum: *Serving the Nation: The Future of the NAI*
- 11:20 AM – 12:30 PM Panel 2: *Would Thomas Edison Receive Tenure?*
- 12:30 – 2:00 PM Luncheon featuring Keynote Address by Margaret A. Focarino, U.S. Commissioner for Patents, United States Patent and Trademark Office
- 2:00 – 4:30 PM Induction of NAI Charter Fellows by Commissioner Focarino
- 4:30 PM Conference Ends
- 4:30 PM – 6:00 PM Charter Fellows Reception (invitation only)

---

## DETAILED AGENDA

### WEDNESDAY, FEBRUARY 20, 2013

3:00 – 7:00 PM	Early Conference Check-in (Foyer EFG)
5:00 – 7:00 PM	NAI Board of Directors Meeting (invitation only) (Citrus Room, second floor)
7:00 – 9:00 PM	NAI President's Opening Reception (all are invited to attend) (Ballroom FG)

### THURSDAY, FEBRUARY 21, 2013

6:00 AM – 5:00 PM	Conference Check-in (Foyer EFG)
-------------------	---------------------------------

**\*\*\*\*\* All sessions are held in Ballroom ABCD. Luncheon held in Ballroom EFG \*\*\*\*\***  
**To accommodate a full agenda there are *no* scheduled breaks, however coffee and refreshments will be available in the back of the room and feel free to step out of the room as needed.**

#### GENERAL SESSION

8:00 AM – 12:00 PM	Refreshments provided (Ballroom ABCD)
9:00 – 9:15 AM	Welcome Remarks Paul R. Sanberg, President, National Academy of Inventors

#### SESSION A

Session A: 9:15 – 10:15 AM	Session Co-Chairs: Rathindra N. Bose, University of Houston Shyam Mohapatra, University of South Florida
----------------------------	--

#### TOPIC: Changing the Academic Culture and the Next Generation of Inventors

A-1	9:15 – 9:30 AM	Vikki Hazelwood, Stevens Institute of Technology <i>Formalizing the Incorporation of Innovation and Entrepreneurship for All Students throughout the Undergraduate Engineering Program</i>
A-2	9:30 – 9:45 AM	Paul Swamidass, Auburn University <i>Introducing the Seven Phases of Technological Innovation to Engineers and Scientists</i>
A-3	9:45 – 10:00 AM	Mark Rudin, Boise State University <i>Venture College</i>
A-4	10:00 – 10:15 AM	Kerri Killen, Versor Inc. <i>Accurately Evaluating Spinal Motion in 3-Dimensions</i>

#### PANEL 1

10:30 AM – 12:00 PM	USPTO Panel <i>Harnessing Opportunities to Promote and Foster Academic Innovation</i>  Moderator: Elizabeth L. Dougherty, USPTO Panelists: Rathindra DasGupta, Industrial Innovation Partnerships, National Science Foundation Dean Florez, President and CEO, The Twenty Million Minds Foundation Babs Carryer, Carnegie Mellon University and National Collegiate Inventors & Innovators Alliance (NCIIA)
---------------------	--

**12:00 – 1:40 PM      Keynote Luncheon**

12:00 – 12:30 AM Lunch served (buffet)

12:30 – 12:50 PM Welcome Remarks and Introduction  
President Judy Genshaft, University of South Florida System  
James D. Shields, President and Chief Executive Officer, The Charles Stark Draper Laboratory

12:50 – 1:40 PM **Keynote Address**  
Robert S. Langer  
David H. Koch Institute Professor  
Massachusetts Institute of Technology  
*Creating and Implementing Breakthrough Technologies*

**1:40 – 2:00 PM Break**

## SESSION B

2:00 – 4:30 PM Refreshments provided (Ballroom ABCD)

Session B: 2:00 – 4:30 PM Session Co-Chairs:  
Richard A. Houghten, Torrey Pines Institute for Molecular Studies  
Prem S. Paul, University of Nebraska–Lincoln

### **TOPIC: Technology Transfer & Commercialization**

B-1 2:00 – 2:15 PM Haskell Adler, H. Lee Moffitt Cancer Center & Research Institute  
*A Short Primer on the Affordable Care Act (ACA)*

B-2 2:15 – 2:30 PM Jason Koenig, New Mexico State University  
Ou Ma, New Mexico State University  
*NMSU's Arrowhead Center*

B-3 2:30 – 2:45 PM Vinit Nijhawan, Boston University  
Colab: Accelerating the Academic Research Innovation Cycle

### **TOPIC: Lab to Market**

B-4 2:45 – 3:00 PM Paul C. W. Chu, University of Houston  
*What's New in HTS–High Temperature Superconductors*

B-5 3:00 – 3:15 PM Shinn-Zong Lin, China Medical University  
*Meeting Unmet Medical Needs: Strategies Used By Physician Inventors*

B-6 3:15 – 3:30 PM Leonard Polizzotto, Draper Laboratory  
*Lab to Market: Bridging the "Valley of Death"*

### **TOPIC: New Disruptive Technologies**

B-7 3:30 – 3:45 PM Gerardine G. Botte, Ohio University  
*Ammonia and Urea Electrolysis: The Beginning of the Greenbox*

B-8 3:45 – 4:00 PM Gregg Givens, East Carolina University  
*Innovation, Patents and Disruptive Implementation*

B-9 4:00 – 4:15 PM Robert Magnusson, University of Texas at Arlington  
*Principles and Applications of Photonic Resonance Effects in Nanopatterned Films*

B-10 4:15 – 4:30 PM Dharma P. Agrawal, University of Cincinnati  
*Usefulness of Wireless Technology in Medical Applications*

**4:30 – 5:30 PM**      **Break**

**4:30 – 6:00 PM**      **Guided Bus Tours of the University of South Florida Campus**  
Tours leaving at 4:30, 5:00 and 5:30 for a 20 minute guided bus tour, led by USF Green & Gold student guides. Pick up/drop off under the portico at the hotel entrance. Last tour ends at 6:00.

### RECEPTION

**5:30 – 7:30 PM**      **Reception in the Galleria (Heavy hors d'oeuvres and cash bar)**  
The Galleria is located directly across the street from the hotel at 3802 Spectrum Blvd. It is the glassed-in area between the tall red and white buildings. You may walk or drive. Parking is available on the north side of the building in visitor parking.

## FRIDAY, FEBRUARY 22, 2013

6:00 AM – 4:00 PM      Conference Check-in (Foyer EFG)

8:00 – 8:45 AM      *Technology & Innovation* Journal Editorial Board Breakfast & Meeting (invitation only)  
(Ballroom FG)

**\*\*\*\*\* All sessions are held in Ballroom ABCD. Luncheon held in Ballroom EFG \*\*\*\*\***  
**To accommodate a full agenda there are *no* scheduled breaks, however coffee and refreshments will be available in the back of the room and feel free to step out of the room as needed.**

8:00 AM – 12:30 PM      Refreshments provided (Ballroom ABCD)

### SESSION C

Session C: 9:00 – 10:00 AM      Session Co-Chairs:  
James G. Conley, Northwestern University  
Huntington Potter, University of Colorado, Denver/Anschutz Medical Campus

#### **TOPIC: The Academic Entrepreneur**

C-1      9:00 – 9:20 AM      Hector F. DeLuca, University of Wisconsin-Madison  
*Vitamin D: From the Laboratory to the Market*

C-2      9:20 – 9:40 AM      Eric R. Fossum, Dartmouth College  
*CMOS Image Sensors: Tech Transfer from Saturn to Your Cell Phone*

C-3      9:40 – 10:00 AM      Leroy Hood, Institute for Systems Biology  
*Biological Complexity and Innovation*

### KEYNOTE SESSION

10:00 – 10:30 AM      Introduction  
Randy Berridge, President, Florida High Tech Corridor Council

President's Address: *State of the Academy*  
Paul R. Sanberg, President, National Academy of Inventors and  
Senior Vice President for Research & Innovation, University of South Florida



10:30 – 11:20 AM Open Member & Fellow Forum: *Serving the Nation: The Future of the NAI*  
Opening Remarks & Moderators:  
George R. Newkome, Vice President for Research, The University of Akron  
Elizabeth L. Dougherty, Director of Inventor Education, Outreach & Recognition,  
USPTO

## **PANEL 2**

11:20 AM – 12:30 PM *Would Thomas Edison Receive Tenure?*  
Moderator: Nasser Arshadi, Vice Provost for Research, University of Missouri–St. Louis  
Panelists:  
Mory Gharib, Vice Provost for Research, California Institute of Technology  
Patrick T. Harker, President, University of Delaware  
Eric W. Kaler, President, University of Minnesota  
Richard B. Marchase, Interim President, University of Alabama at Birmingham  
Timothy D. Sands, Provost, Purdue University

**12:30 – 2:00 PM** **Keynote Luncheon**  
(separate program will be provided)

12:30 – 1:00 PM Lunch served (plated)

1:00 – 1:10 PM Welcome Remarks and Introduction  
Anne H. Chasser  
Former U.S. Commissioner for Trademarks  
United States Patent and Trademark Office

**1:10 – 2:00 PM** **Keynote Address**  
Margaret A. Focarino  
U.S. Commissioner for Patents  
United States Patent and Trademark Office  
*Patents and Progress: The USPTO Outlook*

2:00 – 4:30 PM Induction of NAI Charter Fellows by Commissioner Focarino

**4:30 PM** **Conference Ends**

**4:30 – 6:00 PM** **Charter Fellows Reception (invitation only) (Ballroom BC)**

---

## ORAL PRESENTATIONS

### *TIME LIMITATIONS ON PRESENTATIONS*

Please be aware of the time limitations for each oral presentation as noted in the **Detailed Agenda**. Most presentations are allotted 15 minutes. The time allotted includes the time for questions.

There are several presentations that are allotted a different amount of time. Please adhere to the time allocated for your presentation.

Session co-chairs have a timer and will provide a one-minute warning when you are nearing the end of your allocated time.

To ensure that the meeting proceeds as scheduled, please refer to the agenda for your presentation time. **Please provide the Audio Visual Technician your Power Point Presentation at least 60 minutes prior to the beginning of the Session in which you are presenting.** The Audio Visual Technician will be available during the Sessions to assist as needed. If you have any questions, prior to the start of your Session, please speak with someone at the Registration Table outside the Ballroom.

Thank you for your cooperation.

---

## National Academy of Inventors®

The National Academy of Inventors® (NAI) was founded at the University of South Florida in 2010, in order to recognize investigators at universities and non-profit research institutes who translate their research findings into inventions that may benefit society.

To join the NAI, an inventor must be affiliated with a Member Institution and be a named inventor on one or more patents issued by the United States Patent and Trademark Office. In addition to regular membership, honorary membership is recognized.

The NAI currently has 54 Charter Member Institutions, two international affiliates, and more than 2,000 individual inventor members.

The NAI is a 501(c)3 non-profit organization and edits the multidisciplinary journal *Technology and Innovation – Proceedings of the National Academy of Inventors®*, published by Cognizant Communication Corporation (NY).

The NAI publishes an email newsletter and maintains a presence on Facebook and Twitter. The NAI website is at [www.AcademyofInventors.org](http://www.AcademyofInventors.org).

### • MISSION •

The mission of the National Academy of Inventors® is to honor academic invention; recognize and encourage inventors; enhance the visibility of university and non-profit research institute technology and innovation; encourage the disclosure of intellectual property; educate and mentor innovative students; and translate the inventions of its members to benefit society.

### • GOALS AND OBJECTIVES •

To recognize publicly a cadre of investigators who are also inventors.

To enhance visibility of university and non-profit research institution technology development, promote entrepreneurship and be advocates for academic innovation in the local community.

To be a resource for the local community to facilitate greater industry research contracts and interactions with companies and organizations in order to increase economic impact.

To increase awareness of intellectual property by mentoring, fostering and encouraging faculty, staff and students to develop their intellectual property and inventions.

To help shape society by being in a position to understand the translational use of inventions at the university or research institute and elsewhere; and to be a role model in such endeavors for students.

To develop relevant invention-based activities in collaboration with the institution's administration of patents and licensing.

---

# National Academy of Inventors®

## Board of Directors and Officers

Paul R. Sanberg, President, University of South Florida  
George R. Newkome, Vice President, The University of Akron  
Howard J. Federoff, Vice President, Georgetown University Medical Center  
Shyam S. Mohapatra, Secretary, University of South Florida  
Sudeep Sarkar, Treasurer, University of South Florida  
Nasser Arshadi, University of Missouri–St. Louis  
Lawrence Dunleavy, University of South Florida  
Felix Okojie, Jackson State University  
Shivshankar Sundaram, Draper Laboratory  
John D. Weete, Auburn University

## Current Charter Member Institutions

Auburn University	Temple University
Boise State University	Thayer School of Engineering at Dartmouth
Boston University	Torrey Pines Institute of Molecular Studies
California Institute of Technology	The University of Akron
Clark Atlanta University	The University of Alabama
Cleveland State University	The University of Alabama at Birmingham
Draper Laboratory	University of Arkansas
East Carolina University	University of Central Florida
Embry-Riddle Aeronautical University	University of Cincinnati
Emory University	University of Colorado Denver/AMC
Florida A&M University	University of Delaware
Florida Atlantic University	University of Evansville
Florida Gulf Coast University	University of Florida
Florida Institute of Technology	University of Houston
Florida International University	University of Massachusetts Amherst
Florida State University	University of Massachusetts Medical School
Georgetown University	University of Missouri–St. Louis
H. Lee Moffitt Cancer Center & Research Institute	University of Nebraska–Lincoln
Institute for Human & Machine Cognition	The University of North Dakota
The Jackson Laboratory	University of South Florida
Jackson State University	The University of Southern Mississippi
New Mexico State University	University of Texas at Arlington
Ohio University	The University of Utah
Oklahoma State University	University of West Florida
Polytechnic Institute of NYU	Wake Forest University
Smithsonian Lemelson Center for the Study of Invention & Innovation	Wichita State University
SRI International	<i>International Affiliates:</i>
Stevens Institute of Technology	China Medical University, Taiwan
	Kaatsu Medical Institute, Japan

## The National Academy of Inventors Thanks Our Sponsors

### Platinum Sponsor



The Florida High Tech Corridor Council (FHTCC) is a regional economic development initiative of the University of Central Florida (UCF), the University of South Florida (USF) and the University of Florida (UF) whose mission is to grow high tech industry and innovation in the region through partnerships that support research, marketing, workforce and entrepreneurship. A partnership involving more than 25 local and regional economic development organizations (EDOs) and 14 community colleges, the Council is co-chaired by the presidents of UCF, USF and UF. The Council includes the presidents of two of the community colleges, the president of Florida Institute of Technology and representatives of high tech industry. The unique partnership has resulted in a strategic approach to high tech economic development that involves matching funds research, workforce development and a marketing program leveraging governmental, EDO and corporate budgets on a regional rather than local basis.

### Gold Sponsor



Draper Laboratory, which celebrates its 80<sup>th</sup> anniversary this year, is a not-for-profit research and development laboratory focused on the design, development, and deployment of advanced technological solutions for our nation's most challenging and important problems in security, space exploration, health-care, and energy. Draper's expertise includes the areas of guidance, navigation, and control systems: fault-tolerant computing; advanced algorithms and software solutions; modeling and simulation; and MEMS and multichip module technology.

### Silver Sponsor



Smith & Hopfen is the largest law practice on Florida's West Coast exclusively devoted to Intellectual Property (IP). Ron Smith and Anton Hopfen are both Board Certified in IP, the highest level of recognition by the Florida Bar of a lawyer's competency and experience. Only 137 out of nearly 100,000 attorneys in Florida are Board Certified in IP. Every practitioner at Smith & Hopfen is registered to practice before the U.S. Patent & Trademark Office and holds a science or engineering degree.

### Sponsored Grants for Conference Support



Oak Ridge Associated Universities is a consortium of 102 doctoral degree-granting universities and colleges whose legacy stretches back to the Manhattan Project. ORAU is also a 501 (c) (3) non-profit corporation that supports a number of federal government agencies and programs, and that manages the Oak Ridge Institute for Science and Education for the U. S. Department of Energy. ORAU's activities include fellowship and scholarship programs, research participation, internships, travel and special events programs (such as the National Academy of Inventors Conference), high performance computing grants, faculty awards, HBCU summer programs, and technology awards. Simply put, it pays to be a member of ORAU.



The University of South Florida is a high-impact, global research university dedicated to student success. USF ranks 50<sup>th</sup> in the nation for federal and total expenditures in research among all U.S. universities, public or private (NSF), and earned over \$411 million in research awards and contracts in FY2012. USF ranks tenth worldwide among universities granted U.S. patents (IPO), and is ranked fourth among the country's most veteran-friendly schools by *Military Times Edge*. It is one of only 40 public research universities nationwide with very high research activity that is designated as community engaged by the Carnegie Foundation for the Advancement of Teaching. The *Chronicle of Higher Education* ranked USF as the fifth fastest growing research university in the U.S. from 2000-2010. Serving more than 47,000 students, USF ranks 40th on *Forbes'* Top 100 Best Buy Colleges. It has an annual budget of \$1.5 billion and an annual economic impact of \$3.7 billion. USF is a member of the Big East Athletic Conference.



## 2<sup>nd</sup> Annual Conference of the National Academy of Inventors • Presenter Biographies •

**THURSDAY, FEBRUARY 21, 2013**



General Session

### **Welcome Remarks**

**Paul R. Sanberg**, National Academy of Inventors

Paul R. Sanberg, Ph.D., D.Sc., is founder and president of the National Academy of Inventors, and senior vice president for Research & Innovation, Distinguished University Professor, and executive director of the Center of Excellence for Aging and Brain Repair at the University of South Florida. He trained at York University, the University of British Columbia, the Australian National University and Johns Hopkins University School of Medicine, among others. He has held academic positions at Ohio University, the University of Cincinnati, and Brown University. He is an inventor on 30 licensed health-related U.S. patents and 70 foreign patents. His work has been instrumental in translating new pharmaceutical and cellular therapeutics to clinical trials and commercialization for Tourette syndrome, stroke, ALS, Alzheimer's, Huntington's, and Parkinson's disease and he has significant biotech and pharmaceutical industry experience in these areas. He has approximately 600 publications, is a AAAS Fellow, a Charter Fellow of the NAI, and serves on the evaluation committee of the National Medal of Technology and Innovation.



Session A: Co-Chair

**Rathindra N. Bose**, University of Houston

Rathindra N. Bose, Ph.D., is vice chancellor for Research and Technology Transfer for the University of Houston System and vice president for Research and Technology Transfer for UH. He holds a tenured professorial appointment with the department of Chemistry. His research interests and activities cover a wide range of multidisciplinary and interdisciplinary areas, including metals in medicine, gene markers for different cancers and new catalysts for fuel cells. Bose has three issued patents and four pending applications on cancer drugs and fuel cell electrocatalysts pending at the United States Patent and Trademark Office. A New York-based biotechnology company, Phosplatin Therapeutics, has licensed his anticancer agents. Bose has published more than 90 refereed articles and 73 abstracts and proceedings, and has presented numerous lectures in national and international conferences and academic institutions.



Session A: Co-Chair

**Shyam S. Mohapatra**, University of South Florida

Shyam S. Mohapatra, Ph.D., is Mabel & Ellsworth Simmons Professor of Allergy & Immunology and director of the Nanomedicine Research Center at the University of South Florida. He trained at the Australian National University, University of Bielefeld and McGill University, among others. He received the Alexander von Humboldt research fellowship (Germany) and Pharmacia Allergy Research Foundation Award (Sweden). He has authored over 100 papers and several patents. He is editor-in-chief of *Genetic Vaccines and Therapy*. His research focuses on molecular mechanisms underlying inflammation in respiratory diseases, cancers, viral infections and traumatic brain injury, using nanotechnology approaches to advance translational research in many of these disease areas. He is an NAI Charter Fellow.



Presentation A-1

***Formalizing the Incorporation of Innovation and Entrepreneurship for All Students throughout the Undergraduate Engineering Program***  
**Vikki Hazelwood**, Stevens Institute of Technology

Vikki Hazelwood, Ph.D., focuses on translational research, with an emphasis on the development of efficacious medical devices and physiologic methods that improve public health. Her successes include the clinical use of several developments for minimally invasive evaluation, earlier stage detection of disease, and assistive technologies for the handicapped. She founded the Lab for Translational Research in Medicine at Stevens. Research at the lab has spawned several patents and patent applications. She has held executive positions in sales and business development for several medical device companies focused on drug delivery technology and surgical techniques for orthopedics and interventional cardiology.



Presentation A-2

***Introducing the Seven Phases of Technological Innovation to Engineers and Scientists***  
**Paul Swamidass**, Auburn University

Paul Swamidass, Ph.D., is professor of Operations Management and director of the Thomas Walter Center for Technology Management at Auburn University. He is an independent inventor with one issued patent. Current research and teaching interests center on high tech entrepreneurship, technology commercialization, and business plan development for startups based on university inventions. For the last two years, he ran the Invention2Venture Challenge where student teams were challenged to start a business and produce profits within 72 hours, with the winning team awarded \$1,000. He has trained over 40 graduate students in university invention evaluation, patent search, and business plan preparation.



Presentation A-3

***Venture College***  
**Mark Rudin**, Boise State University

Mark J. Rudin, Ph.D., is vice president for Research and Economic Development at Boise State University, a Metropolitan Research University of Distinction. Among his priorities are to lead strategic efforts to diversify Boise State's research portfolio, to better define areas of research strength, and to build partnerships in the public and private sector. His academic background is in the field of Health Physics. All of his degrees are from Purdue University, including a Ph.D. in Medicinal Chemistry, Concentration in Health Physics (1989); a master of science in Health Physics (1985); and a bachelor of science in Health Science (1983).



Presentation A-4

***Accurately Evaluating Spinal Motion in 3-Dimensions***  
**Kerri Killen**, Versor Inc.

Kerri L. Killen is the founder of Versor Inc. She is a recent graduate of Stevens Institute of Technology, where she majored in Biomedical Engineering. In her senior year, she worked with a team of students in their senior design course to develop, design, build and patent the device to accurately evaluate spinal motion in 3-dimensions. After graduation, she established Versor Inc., with her group member, Samantha Music, to further develop their prototype and bring it up to market level.





Panel 1: USPTO Panel

***Harnessing Opportunities to Promote and Foster Academic Innovation***  
**Moderator: Elizabeth L. Dougherty, USPTO**

Elizabeth Dougherty, J.D., is the Director of Inventor Education, Outreach, and Recognition in the Office of Innovation Development at the USPTO, where she develops, implements and supervises programs that support the independent inventor community, small businesses, entrepreneurs, and the intellectual property interests of colleges and universities, and coordinates the ombudsman program for small businesses and entrepreneurs. She also supervises the development of outreach programs to women, minority and other underserved communities, and builds and maintains relationships with state and local governments to promote local programs that support invention and innovation in the U.S.



Panelist

**Rathindra DasGupta**, Industrial Innovation Partnerships, National Science Foundation

Rathindra (Babu) DasGupta is lead program director for the Industry University Cooperative Research Center program at the National Science Foundation, and lead I-Corps program director from the Engineering Directorate. Previously he was program director of Industrial Innovation & Partnerships, NSF Small Business Innovation Research Program. Honors include the Raymond D. Peters Endowed Professorship in Materials Science and Inland Steel Ryerson Outstanding Undergraduate Teacher at the Milwaukee School of Engineering, Herman Doehler Award from the North American Die Casting Association, and the Innovation Award at CON-TECH. He was ASM-IIM Visiting Lecturer to India, and a visiting scientist to China Steel Corporation, Taiwan. He holds five patents.



Panelist

**Dean Florez**, The Twenty Million Minds Foundation

Dean Florez, retired California Senator and Senate Majority Leader, serves as President and CEO of The Twenty Million Minds Foundation in Sacramento, CA, after nearly 20 years of legislative policy making in the higher education field. At Twenty Million Minds, he spearheads the non-profit's efforts to combat higher education access and affordability issues. At the forefront of the agenda are initiatives dedicated to bringing high quality open textbooks to faculty and students across postsecondary institutions. He is a past investment banker and received his MBA from Harvard and BA in Political Science from UCLA.



Panelist

**Babs Carryer**, Carnegie Mellon University and National Collegiate Inventors & Innovators Alliance

Babs Carryer is president of Carryer Consulting and co-founder of LaunchCyte, and is a serial entrepreneur. She blogs about entrepreneurship on New Venturist and is the new director of faculty development and training at the NCIIA, which supports entrepreneurship at the nation's universities. She taught entrepreneurship at Carnegie Mellon University (CMU) for 15 years, where she maintains an adjunct position. Formerly, she was embedded entrepreneur for CMU's Project Olympus and Institute for Social Innovation. At the University of Pittsburgh, she taught the *Benchmark to Bedside* new technology commercialization course for seven years. She received her master's degree in Public Management from CMU.



Keynote Luncheon

**Welcome Remarks**

**Judy Genshaft**, University of South Florida System

Dr. Judy Genshaft serves as University of South Florida System president and president of the University of South Florida, one of the nation's largest and most comprehensive metropolitan research universities. As chief executive officer of the USF System, she oversees a system serving more than 47,000 students at two institutions, including a major academic medical center, and two regional campuses. Dr. Genshaft is responsible for the management of all units of the USF System, a \$1.5 billion operating budget that includes \$411.1 million in sponsored research funding, and relations with the Board of Trustees, the Board of Governors, the State Board of Education, the Florida Legislature and other state agencies, as well as Congress and federal agencies.



Keynote Luncheon

**Introduction**

**James D. Shields**, Draper Laboratory

James D. Shields is president and CEO of The Charles Stark Draper Laboratory, an independent not-for-profit research institution that develops innovative solutions to some of the nation's most difficult problems in national security, space, biomedical engineering, and energy. He is a member of senior advisory boards and panels including the Defense Science Board, the Navy Strategic Systems Programs Executive Steering Task Group, and the Massachusetts High Technology Council. Previously, he had a 28-year career at TASC culminating in the position of Vice President for Strategic Development. He earned the S.B. and S.M. degrees in Electrical Engineering from MIT, and is a fellow of AIAA, a senior member of IEEE, and a member of Tau Beta Pi and Eta Kappa Nu.

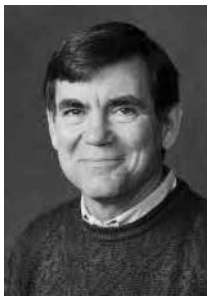


Keynote Luncheon

**Creating and Implementing Breakthrough Technologies**

**Robert S. Langer**, Massachusetts Institute of Technology

Robert S. Langer is the David H. Koch Institute Professor at MIT (there are 14 Institute Professors at MIT; being an Institute Professor is the highest honor that can be awarded to a faculty member). He has written more than 1,190 articles. He also has 810 issued and pending patents worldwide. His many awards include the United States National Medal of Science, the United States National Medal of Technology and Innovation, the Charles Stark Draper Prize (considered the engineering Nobel Prize), Albany Medical Center Prize (largest U.S. medical prize), the Wolf Prize for Chemistry and the Lemelson-MIT prize, for being "one of history's most prolific inventors in medicine." Langer is one of the very few individuals ever elected to the Institute of Medicine, the National Academy of Engineering and the National Academy of Sciences. He is an NAI Charter Fellow.



Session B Co-Chair

**Richard A. Houghten**, Torrey Pines Institute for Molecular Studies

Richard A. Houghten, Ph.D. is founder, CEO and president of Torrey Pines Institute for Molecular Studies, a not-for-profit, bi-coastal medical research organization. Now in its 24<sup>th</sup> year, it has become internationally recognized for its scientific contributions. He founded three commercial businesses, including a publicly-traded biotechnology company. His many awards include the 2004 Ralph Hirschmann Award in Peptide Chemistry by the American Chemical Society, the 2005 Bruce Merrifield Award by the American Peptide Society. He has authored/co-authored over 500 publications and has been issued 75 U.S. and 47 foreign patents. He is an American Association of Pharmaceutical Sciences Fellow and an NAI Charter Fellow.



Session B Co-Chair

**Prem S. Paul**, University of Nebraska-Lincoln

Prem S. Paul, D.M.V., Ph.D., is vice chancellor for research and economic development at the University of Nebraska-Lincoln. He has made significant contributions to animal health through research on viral pathogenesis of respiratory and reproductive diseases, leading to improved vaccines and diagnostic tests. He received the SmithKline Beecham Award for Research Excellence, and holds 21 U.S. patents (19 licensed to two companies). He has published more than 100 papers in refereed journals and numerous books, book chapters, and review articles. In 2009, he was elected as a fellow of the American Association for the Advancement of Science, and he is an NAI Charter Fellow.



Presentation B-1

***A Short Primer on the Affordable Care Act (ACA)***

**Haskell Adler**, H. Lee Moffitt Cancer Center & Research Institute

Haskell Adler, Ph.D., is senior licensing manager at H. Lee Moffitt Cancer Center & Research Institute. Previously he was science advisor in the Intellectual Property Practice of the law firm Ballard Spahr, a principal at Georgia Venture Partners (GVP), interim CEO of Axona Inc., a GVP portfolio company, and an analyst at Kilkenny Capital Management and S Squared Technology Corporation, hedge funds that specialized in biomedical securities. He holds an MBA in finance from the Yale School of Management, a Ph.D. in chemistry from the University of California, San Diego and the Salk Institute, and a B.A. in chemistry and physics from Cornell University.



Presentation B-2

***NMSU's Arrowhead Center***

**Jason Koenig**, New Mexico State University

Jason Koenig is director of the Office of Intellectual Property and Technology Transfer at New Mexico State University's Arrowhead Center, where he oversees the commercialization of all NMSU technologies. He also serves as director for Launch, Arrowhead Center's proof-of-concept program to expedite the transfer of technologies from campus to commercial markets. He has recently established the Technology Commercialization Associates program, in which cross-disciplinary graduate student teams work to commercialize university technologies. He received an MBA from NMSU.



Presentation B-2

***NMSU's Arrowhead Center***

**Ou Ma**, New Mexico State University

Ou Ma, Ph.D., is the John Kaichiro Nakayama and Tome Miyaguchi Nakayama Professor of Mechanical and Aerospace Engineering and director of the Reduced-Gravity and Biomechanics Lab at New Mexico State University. He received a Ph.D. from McGill University. He worked in MDA Space Missions from 1991 to 2002, participating in the development and operation support of the Space Shuttle and the International Space Station robotic systems. His current research interests are in robotic systems and human biomechanics for aerospace and biomedical applications. He is a member of the American Society of Mechanical Engineers, the IEEE and the American Institute of Aeronautics of Astronautics.



Presentation B-3

***Colab: Accelerating the Academic Research Innovation Cycle***  
**Vinit Nijhawan**, Boston University

Vinit Nijhawan is managing director of Technology Development, and director of Enterprise Programs at the Institute of Technology, Entrepreneurship & Commercialization at Boston University, where he also teaches MBA courses on entrepreneurship. He spent 30+ years building five startups that were acquired and was CEO of three. He was venture partner at Key Venture Partners where in two years he sourced over 200 deals and made one investment acquired for \$430M. He is advisor and board member to several technology startups including MTDC, an early stage, quasi-public Massachusetts venture capital firm, and was a Mass High Tech All-Star in 2005. He earned a B.A.Sc. in electrical engineering from the University of Waterloo, Canada.



Presentation B-4

***What's New in HTS—High Temperature Superconductors***  
**Paul C. W. Chu**, University of Houston

Paul C. W. Chu, Ph.D., is T. L. L. Temple Chair of Science, and founding director and chief scientist, Texas Center for Superconductivity at the University of Houston. He is president emeritus and University Professor Emeritus, Hong Kong University of Science and Technology, and Honorary Chancellor, Taiwan Comprehensive University System. He received his B.S., M.S., and Ph.D. degrees from Cheng-Kung University (Taiwan), Fordham University, and University of California, San Diego, respectively. He is a world-leader in high temperature superconductivity research since his breakthrough in achieving superconductivity above the liquid nitrogen boiling point and remains the record holder of  $T_c$ . He received the National Medal of Science, is a member of the National Academy of Sciences, and an NAI Charter Fellow.



Presentation B-5

***Meeting Unmet Medical Needs: Strategies Used by Physician Inventors***  
**Shinn-Zong (John) Lin**, China Medical University

Shinn-Zong (John) Lin, M.D., Ph.D., is professor of Neurosurgery, superintendent of China Medical University Beigang Hospital, and vice superintendent of the Center for Neuropsychiatry at China Medical University Hospital, Taiwan. He trained at the National Defense Medical Center, Taipei, and SUNY Stony Brook. He served as professor of Neurosurgery at the National Defense Medical Center, chair of Neurosurgery at Tri-Service General Hospital, and superintendent at Tzu-Chi General Hospital. He is the inventor of many patented treatment technologies for brain damage patients, holds 13 patents, and has over 212 publications in refereed journals. He is a highly accomplished neurosurgeon and applied neuroscientist for translational innovative therapies for stroke and neuro-degenerative diseases. He is an NAI Charter Fellow.



Presentation B-6

***Lab to Market: Bridging the “Valley of Death”***  
**Leonard Polizzotto**, Draper Laboratory

Leonard Polizzotto, Ph.D., is Draper Laboratory's vice president responsible for Strategic Business Development and Marketing. Reporting to the president and CEO, he is leading efforts to raise the Laboratory's profile to help capture new opportunities for sponsored research and bring the Laboratory's emerging technologies to market to benefit the public good. Prior to joining Draper Lab in 2007, Polizzotto served for six years as corporate vice president for Business Development and Marketing for SRI International, a world leader in contract R&D services. A 25-year tenure at the Polaroid Corporation preceded this, concluding with the assignment of corporate vice president for New Business Development. Between corporate experiences, Polizzotto directed the Center for the Globalization of Technology at Worcester Polytechnic Institute. He is an NAI Charter Fellow.



Presentation B-7

***Ammonia and Urea Electrolysis: The Beginning of the Greenbox***

**Gerardine G. Botte**, Ohio University

Gerardine G. Botte, Ph.D., is Russ Professor of Chemical and Biomolecular Engineering and currently serves as director of the Center for Electrochemical Engineering Research, Ohio University. She is a leading researcher in electrochemistry and has made significant innovations in this field. She is a fellow of the WTN and was named a finalist of the WTA 2010. She holds seven U.S. patents and two foreign patents that have been licensed. She is the founder and CTO of E3 Clean Technologies. She has published 56 articles, four book chapters and serves as editor for the *Journal of Applied Electrochemistry*. She is a member of prestigious organizations such as the ECS and the ISE, and is an NAI Charter Fellow.



Presentation B-8

***Innovation, Patents and Disruptive Implementation***

**Gregg Givens**, East Carolina University

Gregg D. Givens, Ph.D., is professor and chair of the department of Communication Sciences and Disorders at East Carolina University. He holds a Ph.D. in Audiology from Florida State University and is a fellow of the American Speech-Language-Hearing Association and the American Academy of Audiology. He has performed extensive research in the areas of tele-audiology. He is the author of 40 peer reviewed publications in journals such as the *Journal of Speech-Language-Hearing Research*, *Journal of the American Academy of Audiology*, *Journal of Otology, Rhinology and Laryngology*, *Telemedicine Journal and e-Health*, and the *Journal of Clinical Monitoring and Computing*. He is the principal inventor on four issued patents.



Presentation B-9

***Principles and Applications of Photonic Resonance Effects in Nanopatterned Films***

**Robert Magnusson**, University of Texas at Arlington

Robert Magnusson, Ph.D., is the Texas Instruments Distinguished University Chair in Nanoelectronics and professor of Electrical Engineering at UT-Arlington. He received his Ph.D. in Electrical Engineering from the Georgia Institute of Technology. Previously he was professor and head of electrical and computer engineering at the University of Connecticut. He served as associate editor of *Applied Optics and Optical Engineering*. Current research addresses periodic nanostructures, nanolithography, nanophotonics and electronics, nanoplasmonics, and optical bio- and chemical sensors. He is a fellow of the Optical Society of America and SPIE, received the IEEE Third Millennium Medal, and is an elected member of the Connecticut Academy of Science and Engineering. He is an NAI Charter Fellow.



Presentation B-10

***Usefulness of Wireless Technology in Medical Applications***

**Dharma P. Agrawal**, University of Cincinnati

Dharma P. Agrawal, D.Sc., is Ohio Board of Regents Distinguished Professor at the University of Cincinnati. He has provided leadership in education and exemplary accomplishments in wireless technologies, including sensor networks. He is the recipient of the 2008 Harry Goode Memorial award, IEEE second millennium medal, Excellence in Mentoring of Doctoral Students (2011), and ISI Highly Cited Researcher (2002). He holds six U.S. patents and 24 patent disclosures. He is the co-founder of the Global Information Services LLC. He has published 624 articles, seven books, 40 book chapters and serves as editor or editorial board member for six peer-reviewed journals. He is a fellow of IEEE, ACM, AAAS, WIF, and an NAI Charter Fellow.



Session C Co-Chair

**James G. Conley**, Northwestern University

James G. Conley, Ph.D., is clinical professor of technology in Managerial Economics & Decision Sciences at Northwestern University, faculty contributor in the Kellogg Center for Research in Technology & Innovation, faculty fellow at the Segal Design Institute, and visiting professor in the chair of technology and innovation management at the WHU in Germany. His research investigates the strategic use of intangible assets and intellectual properties to build and sustain competitive advantage. He holds seven U.S. patents with others pending, and, through Syndia Corporation (of which he is a founder), has grown and acquired a portfolio of intellectual properties licensed to entities worldwide. He is an NAI Charter Fellow.



Session C Co-Chair

**Huntington Potter**, University of Colorado, Denver

Huntington Potter, Ph.D., is professor of Neurology and director of Alzheimer's Disease Programs, department of Neurology and the Linda Crnic Institute for Down Syndrome at the University of Colorado, Denver. He studied, researched and taught for 30 years at Harvard University and 13 years at the University of South Florida and was founding director of the Byrd and Florida Alzheimer's Center & Research Institutes. He photographed the first Holliday intermediates in genetic recombination, invented the electroporation cuvette for gene transfer, discovered that apoE4 promotes Alzheimer's amyloid formation, and found that Alzheimer's is a mosaic form of trisomy 21/Down syndrome. He has authored over 100 scientific articles and books, holds 15 patents and is a AAAS Fellow and an NAI Charter Fellow. His electron micrographs of DNA are on permanent exhibit in the Smithsonian Institution.



Presentation C-1

***Vitamin D: From the Laboratory to the Market***

**Hector F. DeLuca**, University of Wisconsin-Madison

Hector F. DeLuca, Ph.D., is professor emeritus in the department of Biochemistry at the University of Wisconsin-Madison, and was department chair for 30 years. His laboratory discovered and delineated the vitamin D endocrine system and identified virtually all metabolites of vitamin D. He is responsible for eight pharmaceuticals based on the vitamin D structure that are in use worldwide for the treatment of renal failure, osteoporosis, and vitamin D-resistant conditions. He founded three successful companies, has won many national and international prizes, is a member of the National Academy of Sciences, American Academy of Arts & Sciences, a fellow of the AAAS, and an NAI Charter Fellow. He has over 1,180 publications and has held 1,500 patents.



Presentation C-2

***CMOS Image Sensors: Tech Transfer from Saturn to Your Cell Phone***

**Eric R. Fossum**, Dartmouth College

Eric R. Fossum, Ph.D., is professor at the Thayer School of Engineering at Dartmouth. While at JPL/Caltech, he invented the CMOS image sensor used in billions of camera phones, webcams, DSLRs, swallowable pill cameras, dental x-ray sensors, and many other applications. He co-founded Photobit to further develop and commercialize the technology which was eventually acquired by Micron. He holds over 140 U.S. patents and was inducted into the National Inventors Hall of Fame and the Space Technology Hall of Fame. He has published over 250 papers, is an IEEE Fellow, and received the IEEE Andrew Grove Award and the NASA Exceptional Achievement Medal. He serves as president of the International Image Sensor Society and is a member of the National Academy of Engineering. He is an NAI Charter Fellow.



Presentation C-3

***Biological Complexity and Innovation***

**Leroy E. Hood**, Institute for Systems Biology

Leroy E. Hood, Ph.D., M.D., is president of the Institute for Systems Biology, and a pioneer in developing molecular and genomic instrumentation. He played an important role in developing computational and proteomics techniques and pushed the frontiers of genomics, biotechnology, and system biology. He received the Lasker Prize, Kyoto Prize, Economist Innovation Award, Lemelson-MIT Prize, Heinz Prize, Russ Prize, and National Medal of Science. He holds 36 patents. He is the founder or co-founder of 13 startup companies. He has published more than 750 research articles and five books and is a member of all three National Academies, the American Philosophical Society, is a AAAS Fellow and an NAI Charter Fellow.



Keynote Session

*Introduction*

**Randy Berridge**, Florida High Tech Corridor Council

Randy Berridge has been president of the Florida High Tech Corridor Council since its formation in 1996. He also serves as president of the Berridge Consulting Group, Inc., and advisory board member of SunTrust Bank, N.A. Previously, he held management positions with AT&T Corporation including chair of the Central Florida AT&T Management Council and district manager of public relations for the Florida division. He is an alumnus of Leadership Orlando and Leadership Florida, a past member of the Mayor of Orlando's High Tech Task Force, the Advisory Board for Florida Community Colleges, and a founding board member of the Astronauts Memorial Foundation.

Keynote Session

***President's Address: State of the Academy***

**Paul R. Sanberg**, National Academy of Inventors

(see page 13)



Open Member & Fellow Forum

***Serving the Nation: The Future of the NAI***

**Moderator: George R. Newkome**, The University of Akron

George R. Newkome, Ph.D., serves as vice president for Research at The University of Akron; president of The University of Akron Research Foundation, chairman of the board of the UofA Student Venture Fund for Northeast Ohio, Oelschlager Professor of Science & Technology, and professor of Chemistry and Polymer Science. He was one of the founders of dendritic polymers and holds 24 U.S. and 23 foreign patents. He has spun-out over 100 companies from universities/industry and is on 10 boards of directors as well as eight science advisory boards. He has published over 460 publications, authored 20 books, and edited 18 comprehensive volumes. He is a fellow of AAAS, the Ohio Academy of Science, and an NAI Charter Fellow.

**Moderator: Elizabeth L. Dougherty**, USPTO

(see page 15)



Panel 2

**Would Thomas Edison Receive Tenure?**

**Moderator: Nasser Arshadi**, University of Missouri–St. Louis

Nasser Arshadi, Ph.D., is vice provost for Research and professor of Finance at the University of Missouri–St. Louis. He received his Ph.D. in financial economics from the University of Nebraska-Lincoln. He has published extensively in economics and finance journals on capital markets and the microeconomics of corporations with an emphasis on assessing and managing risk, and has published two books on financial intermediation and insider trading. He serves on the editorial boards of *Technology and Innovation* and *Public and Municipal Finance*, and served as an economist and policy analyst at the Board of Governors of the Federal Reserve System.



Panelist

**Mory Gharib**, California Institute of Technology

Mory Gharib, Ph.D., is vice provost for Research and Hans W. Liepmann Professor of Aeronautics and Bioinspired Engineering at the California Institute of Technology, specializing in hydro and aerodynamics, biological flows, bioinspired medical devices, and advanced flow visualization techniques. He co-founded Bioengineering Option at Caltech. He holds more than 50 U.S. patents in areas of biomedical devices and imaging technology. He is a fellow of the AAAS, and five other professional societies. He has received five new technology recognition awards from NASA in the fields of advanced laser imaging and nanotechnology. He received the R&D 100 Award for the design of a 3D imaging system in 2008. He is an NAI Charter Fellow.



Panelist

**Patrick T. Harker**, University of Delaware

Patrick T. Harker, Ph.D., is president of the University of Delaware and a research leader in service operations management and economics; financial services operations and technology; operations research methodology; and transportation systems. He holds a U.S. patent and U.S. copyright for methods optimizing transportation schedules. He has published or edited nine books and 100+ articles, and is an ISI highly cited researcher in mathematics. He serves on the advisory boards of *INFORMS Service Science* and *Operations Research*, where he was previously editor-in-chief. Harker is an INFORMS Fellow and a member of IEEE, the American Economic Association and the International Academy of Management. He is an NAI Charter Fellow.



Panelist

**Eric W. Kaler**, University of Minnesota

Eric W. Kaler, Ph.D., became president of the University of Minnesota in 2011 after serving as provost of Stony Brook University. From 1989 to 2007 he held faculty positions at the University of Delaware and was dean of the College of Engineering from 2000-07. After receiving a B.S. in chemical engineering from Caltech, he earned his Ph.D. from the University of Minnesota in 1982 and held faculty positions at the University of Washington from 1982-89. He is an expert in the field of complex fluids and has received numerous professional honors, including election to the National Academy of Engineering in 2010. He is an NAI Charter Fellow.





Panelist

**Richard B. Marchase**, University of Alabama at Birmingham

Richard B. Marchase, Ph.D., is interim president of the University of Alabama at Birmingham as well as its vice president for Research and Economic Development. His research and patents center on controlling cellular calcium entry pathways in physiology and pathologies such as ischemia. He has been instrumental in creating a culture of entrepreneurship at UAB and in integrating the regional business community into the university's innovation and commercialization processes. He also chairs the board of Innovation Depot, Birmingham's award-winning technology incubator. He served as president of the Federation of American Societies for Experimental Biology and has been honored for his contributions by several research organizations. He is an NAI Charter Fellow.



Panelist

**Timothy D. Sands**, Purdue University

Timothy D. Sands, Ph.D., serves as provost and is the Basil S. Turner Professor of Engineering at Purdue University. He has served as acting president of Purdue, director of the Birck Nanotechnology Center, a member of the faculty at UC Berkeley and a researcher at Bellcore. His research in nanomaterials and devices has advanced the fields of solid-state lighting, thermoelectric energy conversion and semiconductor processing. He holds 16 U.S. patents, some of which have contributed to manufacturing processes for GaN LEDs. He has published more than 250 refereed papers. He is a Fellow of IEEE and the Materials Research Society, and is an NAI Charter Fellow.



Keynote Luncheon

**Introduction**

**Anne H. Chasser**, Former U.S. Commissioner for Trademarks, United States Patent and Trademark Office

Anne H. Chasser is an author, intellectual property strategist and expert. As Strategic Advisor for Wolfe-SMBC, she advises clients on IP strategy, branding and licensing and provides expert work in litigation matters. From 1999-2004 she served as Commissioner for Trademarks at the USPTO. *Managing Intellectual Property Magazine* named her one of the Fifty Most Influential People in Global Intellectual Property. She served as associate vice president for Intellectual Property for the University of Cincinnati and president of the International Trademark Association. She is co-author of *Domain Names Rewired* and *Brand Rewired: Connecting Intellectual Property Protections, Branding and Creativity*. She is chair of the NAI Fellows Selection Committee.



Keynote Luncheon

**Patents and Progress: The USPTO Outlook**

**Margaret A. Focarino**, U.S. Commissioner for Patents, United States Patent and Trademark Office

Margaret A. (Peggy) Focarino became Commissioner for Patents for the U.S. Patent and Trademark Office in 2012, where she has served since 1977. She received the Department of Commerce's Bronze Medal for her work as a supervisory patent examiner and Silver Medal for leadership in 2010 for leading a task force that implemented the first significant changes to the patent examiner work credit system in more than 30 years. She received American University's 2010 Roger W. Jones Award for Executive Leadership. She has an undergraduate degree in Physics from the State University of New York, and a Certificate in Advanced Public Management from Syracuse University's Maxwell School of Citizenship and Public Affairs.

---

## Member Institution Representatives

John Weete, Auburn University  
Mark J. Rudin, Boise State University  
Vinit Nijhawan, Boston University  
Fred Farina, California Institute of Technology  
Marcus W. Shute, Clark Atlanta University  
Leonard D. Young, Cleveland State University  
Shivshankar Sundaram, Draper Laboratory  
Mark Foley, East Carolina University  
Michael P. Hickey, Embry-Riddle Aeronautical University  
Todd Sherer, Emory University  
Rose Glee, Florida A&M University  
Barry T. Rosson, Florida Atlantic University  
T.C. Yih, Florida Gulf Coast University  
John P. Politano, Jr., Florida Institute of Technology  
Andrés G. Gil, Florida International University  
John A. Fraser, Florida State University  
Howard J. Federoff, Georgetown University  
James J. Mulé, H. Lee Moffitt Cancer Center & Research Institute  
Julie Sheppard, Institute for Human & Machine Cognition  
Peter Wells, The Jackson Laboratory  
Felix A. Okojie, Jackson State University  
Vimal Chaitanya, New Mexico State University  
Robert Silva, Jr., Ohio University  
Steven Price, Oklahoma State University  
Kurt H. Becker, Polytechnic Institute of New York University  
Arthur Molella, Smithsonian Lemelson Center for the Study of Invention & Innovation  
Curtis R. Carlson, SRI International  
Christos Christodoulatos, Stevens Institute of Technology  
Stephen G. Nappi, Temple University  
Eric R. Fossum, Thayer School of Engineering at Dartmouth  
Richard A. Houghten, Torrey Pines Institute for Molecular Studies  
George R. Newkome, The University of Akron  
Dan Daly, The University of Alabama  
Richard B. Marchase, The University of Alabama at Birmingham  
James M. Rankin, University of Arkansas  
M.J. Soileau, University of Central Florida  
William S. Ball, University of Cincinnati  
Inge Wefes, University of Colorado-Denver  
David S. Weir, University of Delaware  
Richard A. Deer, University of Evansville  
David P. Norton, University of Florida  
Rathindra Bose, University of Houston  
Fred H. Reinhart, University of Massachusetts Amherst  
James P. McNamara, University of Massachusetts Medical School  
Nasser Arshadi, University of Missouri-St. Louis  
Prem S. Paul, University of Nebraska-Lincoln  
Michael F. Moore, The University of North Dakota  
Shyam S. Mohapatra, University of South Florida  
Gordon C. Cannon, The University of Southern Mississippi  
Carolyn L. Cason, University of Texas at Arlington  
Thomas N. Parks, The University of Utah  
Richard S. Podemski, University of West Florida  
Michael Batalia, Wake Forest University  
Keith H. Pickus, Wichita State University  
*International Affiliate:* Shinn-Zong Lin, China Medical University, Taiwan  
*International Affiliate:* Sir Yoshiaki Sato, Kaatsu Medical Institute, Japan

---

---

***The National Academy of Inventors Also Thanks  
The University of South Florida and the USF Chapter for Hosting the Conference***

***2013 Conference Planning Committee***

Shyam S. Mohapatra, Chair, University of South Florida  
Nasser Arshadi, University of Missouri–St. Louis  
Barry B. Bercu, University of South Florida  
Rathindra Bose, University of Houston  
Almesha Campbell, Jackson State University  
Lisa Matragrano, Emory University  
George R. Newkome, The University of Akron  
Paul R. Sanberg, University of South Florida  
Sudeep Sarkar, University of South Florida  
Keara Leach, NAI  
Judy Lowry, NAI

***United States Patent and Trademark Office***

***U.S. Department of Commerce***

***USF Research & Innovation***

Albert Aguliera  
Connie Carr  
Steve Clark  
Judi Dorn  
Hal Dunn  
Rhonda Hendrix  
Ginger Johnson  
Tina Lucas  
Allison Madden  
Valerie McDevitt  
Paul Nixon  
Jessica Scott  
Omar Shaheen  
Auri Shervington  
Deanna Sourk  
April Turley  
Diana Vergara  
  
Aimee Blodgett  
Vickie Chachere  
Anne Chasser  
Randy Berridge  
Susan Bouilly  
President Judy Genshaft  
Peter Howard  
Steve Long  
Inger Mills  
Donna Morrison  
Jim Pirius  
Eva Pennington  
Summer Shibley & Julie Bedford  
Shankar Sundaram

and the many others who have made this conference possible

---

# **Technology and Innovation Proceedings of the National Academy of Inventors®**

**Editor-in-Chief  
Paul R. Sanberg**

University of South Florida  
USF Research & Innovation  
3702 Spectrum Boulevard, Suite 175  
Tampa, FL 33612-9444 USA

**Co-Editor-in-Chief  
Howard J. Federoff**

Georgetown University Medical Center  
4000 Reservoir Road, NW  
120 Building D  
Washington, DC 20007 USA

*Managing Editor:* Ginger A. Johnson  
*Editorial Assistant:* Diana M. Vergara

## **EDITORIAL BOARD**

*Jeff Amerine*  
University of Arkansas

*Nasser Arshadi*  
University of Missouri-St. Louis

*Norman R. Augustine*  
Lockheed Martin Corporation

*William S. Ball*  
University of Cincinnati

*Michael Batalia*  
Wake Forest University

*Kurt H. Becker*  
Polytechnic Institute of  
New York University

*Mark Cantey*  
Inventors Digest

*Curtis R. Carlson*  
SRI International

*Carolyn L. Cason*  
University of Texas at Arlington

*Vimal Chaitanya*  
New Mexico State University

*Stephen Z. Cheng*  
The University of Akron

*Christos Christodoulatos*  
Stevens Institute of Technology

*Dan Daly*  
The University of Alabama

*Tristan J. Fielder*  
Florida Institute of Technology

*Sean Flanigan*  
Association of University Technology  
Managers

*Eric R. Fossum*  
Thayer School of Engineering at Dartmouth

*John Fraser*  
Florida State University

*Andrés G. Gil*  
Florida International University

*Rose Glee*  
Florida A&M University

*Jay Gogue*  
Auburn University

*Lawrence O. Gostin*  
Georgetown University Law Center

*Sharon Heise*  
Institute for Human & Machine Cognition

*Karen A. Holbrook*  
University of South Florida

*Richard A. Houghten*  
Torrey Pines Institute for Molecular Studies

*John P. Johnson*  
Embry-Riddle Aeronautical University

*John Kopchick*  
Ohio University

*Ken S. Lee*  
Jackson State University

*Shinn-Zong (John) Lin*  
China Medical University

*Richard B. Marchase*  
The University of Alabama at Birmingham

*James P. McNamara*  
University of Massachusetts  
Medical School

*Kumi Nagamoto-Combs*  
The University of North Dakota

*Vinit Nijhawan*  
Boston University

*David P. Norton*  
University of Florida

*Prem S. Paul*  
University of Nebraska-Lincoln

*Keith H. Pickus*  
Wichita State University

*Leonard Polizzotto*  
Draper Laboratory

*Steve Price*  
Oklahoma State University

*Jarett Rieger*  
H. Lee Moffitt Cancer Center & Research  
Institute

*Thomas J. Roberts*  
Florida Gulf Coast University

*Barry T. Rosson*  
Florida Atlantic University

*Mark Rudin*  
Boise State University

*Marti Van Scott*  
East Carolina University

*Todd Sherer*  
Emory University

*Marcus W. Shute*  
Clark Atlanta University

*Solomon H. Snyder*  
Johns Hopkins University

*M.J. Soileau*  
University of Central Florida

*Douglas Stamps*  
University of Evansville

*Lonnie G. Thompson*  
The Ohio State University

*Inge Wefes*  
University of Colorado - Denver/AMC

*David S. Weir*  
University of Delaware

*Richard C. Willson*  
University of Houston

*Leonard D. Young*  
Cleveland State University

**Editorial Office:** *Technology and Innovation—Proceedings of the National Academy of Inventors*, University of South Florida Research & Innovation, 3702 Spectrum Boulevard, Suite 175, Tampa, FL 33612-9444 USA. TlJournal@research.usf.edu; Tel: +1-813-974-1347; Fax: +1-813-974-3348

**Publishing, Subscription, & Advertising Office:** Cognizant Communication Corporation, Robert N. Miranda, Publisher, PO Box 37, 18 Peekskill Hollow Road, Putnam Valley, NY 10579 USA. Cogcomm@aol.com; Tel: +1-845-603-6440; Fax: +1-845-603-6442; www.cognizantcommunication.com

---



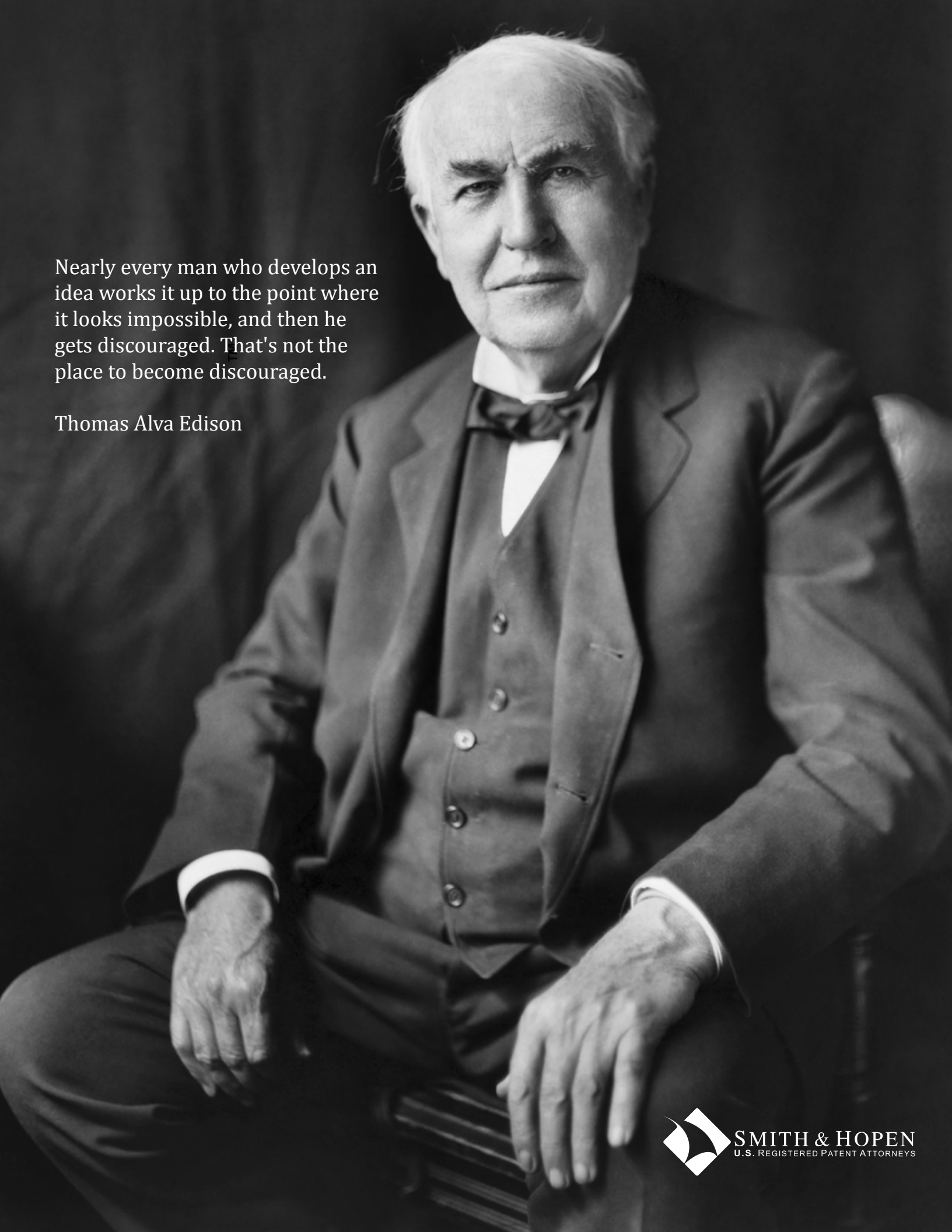










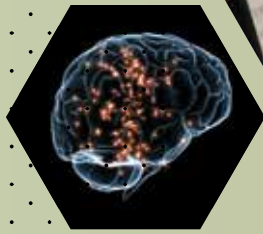
A black and white portrait of Thomas Alva Edison, an elderly man with white hair, wearing a dark suit, a white shirt, and a dark bow tie. He is seated and looking directly at the camera with a serious expression. The background is dark and out of focus.

Nearly every man who develops an idea works it up to the point where it looks impossible, and then he gets discouraged. That's not the place to become discouraged.

Thomas Alva Edison



**SMITH & HOPEN**  
U.S. REGISTERED PATENT ATTORNEYS



Congratulations to

**Dr. Len Polizzotto**

Vice President, Strategic Business Development

And to all the 2012 Fellows of  
the National Academy of Inventors.



80 Years Serving the Nation



★ Save the Date ★



NATIONAL ACADEMY OF INVENTORS

**3<sup>rd</sup> Annual Conference**

**March 5-7, 2014**

at the  
**United States Patent and Trademark Office**  
**Alexandria, Virginia**