

JHU Applied Physics Laboratory Colloquia

October 19, 2018

www.jhuapl.edu/colloquium/archive

colloquium@jhuapl.edu

2018 – 2019

Harlan Ullman (CNIGuard Ltd. and The Killowen Group) *Anatomy of Success: Why a Brains-Based Approach to Strategic Thinking Can Win Wars*. October 19, 2018.

Stephen A. Bourque (School of Advanced Military Studies, Fort Leavenworth) *Challenging Traditional Narratives: Writing Beyond the Beach*. October 16, 2018.

Kimberly Ruiz and Christopher Wood (JHU/APL) *The Impact of APL's Ongoing Support to US Navy Commander, Task Force 70 (CTF-70)*. October 12, 2018.

Yarieska M. Collado-Vega (NASA Goddard Space Flight Center) *Space Weather Research and Forecasting Capabilities at the NASA Community Coordinated Modeling Center (CCMC)*. October 5, 2018.

2017 – 2018

David Winkler (Naval Historical Foundation) *Incidents at Sea*. September 28, 2018.

Jeff Hawkins (Numenta Inc.) *Location, Location, Location: A Framework for Intelligence and Cortical Computation*. September 21, 2018.

Scott Hoschar and Beau Backus (Middle Atlantic Area Frequency Coordination Office and NOAA National Environmental Satellite, Data, & Information Service) *Defense of the Electro-Magnetic Spectrum*. September 14, 2018.

Justin Conrad (Univ. of North Carolina at Charlotte) *Gambling and War: Risk, Reward, and Chance in International Conflict*. September 7, 2018.

David Priess (Author and Commentator) *The President's Book of Secrets*. August 24, 2018.

Dennis Conti (Chair, AAVSO Exoplanet Section) *Amateur Astronomer Participation in the TESS Exoplanet Mission*. August 17, 2018.

Captain Drake Brewster (U.S. Army) *Actinide Isotope Ratios Measured by Resonance Ionization Mass Spectrometry: Optimization of Ionization Schemes and Demonstration Using Nuclear Fallout*. July 13, 2018.

Stephen Phillips (JHU/APL) *Operation Earnest Will*. June 29, 2018.

David Taubenheim (JHU/APL) *(Repeat Presentation) Can You Hear Me Now? Advances in Audio Collection Technology, Machine Learning, and Subterfuge (SECRET Clearance Required)*. June 27, 2018.

- Trent Hone** (Consultant) *Learning War: The Evolution of Fighting Doctrine in the U.S. Navy, 1898-1945*. June 22, 2018.
- Taylor Baldwin Kiland** (Author) *Lessons From the Hanoi Hilton*. June 15, 2018.
- David Brin** (Author and Futurist) *Opportunities, Dangers and Destiny in the Solar System ... and Beyond*. June 8, 2018.
- David Taubenheim** (JHU/APL) *Can You Hear Me Now? Advances in Audio Collection Technology, Machine Learning, and Subterfuge (SECRET Clearance Required)*. June 1, 2018.
- Elyse Zorn Karlin** (Journalist, Museum Curator, and Art Historian) *Out of This World! Jewelry in the Space Age*. May 25, 2018.
- Marc Kolodner and Leo Morris** (JHU/APL) *Janney Energize: Remote Sensing Solutions for Enhancing Situational Awareness: Part 2*. May 18, 2018.
- Marc Kolodner and Leo Morris** (JHU/APL) *Janney Energize: Remote Sensing Solutions for Enhancing Situational Awareness: Part 1*. May 11, 2018.
- Mansur Hasib** (Univ. of Maryland, Univ. College) *Cybersecurity Leadership: The Key to Organizational Success*. May 4, 2018.
- George Bibel** (Univ. of North Dakota) *Plane Crash: The Forensics of Aviation Disasters*. April 27, 2018.
- Tom Glenn** (Author) *The Battle of Dak To: The Cassandra Effect*. April 20, 2018.
- Todd Harrison** (Center for Strategic and International Studies (CSIS)) *Escalation and Deterrence in the Second Space Age*. April 13, 2018.
- Toni Hiley** (CIA Museum Director) *The Art of Intelligence*. April 6, 2018.
- Max Hardberger** (Vessel Extractions LLC) *Under a False Flag: How Smugglers, Terrorists, and Thieves Use Vessels Under Flags of Convenience to Further and Conceal Illicit Activity*. March 30, 2018.
- Chris Singer** (NASA Deputy Chief Engineer (Ret.)) *The Engine of Possibility: Accelerating Development*. March 23, 2018.
- Mary Hallward-Driemeier** (World Bank Group) *Trouble in the Making? The Future of Manufacturing-Led Development*. March 20, 2018.
- Brett Denevi** (JHU/APL) *The New Moon*. March 9, 2018.
- Jared Der-Yeghiayan** (Homeland Security Investigations) *Silk Road Online Black Marketplace Investigative Case Briefing*. March 2, 2018.

- Ambassador (retired) Joseph M. DeThomas** (Pennsylvania State Univ.) *Maintaining Equilibrium on the North Korean Nuclear and Missile Crisis*. February 23, 2018.
- Daniel Haulman** (Air Force Historical Research Agency) *The Tuskegee Airmen: The First African American Pilots in American Military Service*. February 16, 2018.
- Carey Lisse** (JHU/APL Space Exploration Sector) *What We Know and Don't Know About 'Oumuamua*. February 15, 2018.
- Howard Eisner** (Professor Emeritus, George Washington Univ.) *Thinking Outside the Box, With Examples and APL-related Stories*. February 9, 2018.
- LT Chester H. Hewitt III** (Aegis BMD Weapon System Directorate, U.S. Navy) *Analysis of Broadband Metamaterial Shielding for Counter-Directed Energy Weapons*. February 2, 2018.
- CAPT Scott Sirois** (NOAA Corps) *The NOAA Corps: Celebrating a Century of Service (1917-2017)*. January 19, 2018.
- Alan Zimm** (JHU/APL) *A Battle Badly Fought: How Wargaming and Human Factors Lost the Battle of the River Plate*. January 12, 2018.
- Catherine Asaro** (Author and SIGMA member) *Science Fiction Goes to Washington*. January 5, 2018.
- Chris Taylor** (Georgetown Univ.) *Hacking for Defense – Or – Harnessing the National Security Talent of America's Graduate Students*. December 15, 2017.
- Robert Fischell** (Fischell Biomedical) *APL Space Technology Leads to Biomedical Devices*. December 8, 2017.
- Beau Backus** (NOAA National Environmental Satellite, Data, & Information Service) *The Electro-Magnetic Spectrum: Is It Big Enough for All of Us?* December 1, 2017.
- Brad Cenko** (NASA Goddard Space Flight Center) *The Dawn of Multi-Messenger Astrophysics: Gravitational Waves and Light Together at Last*. November 17, 2017.
- Tom Glenn** (Author, "Last of the Annamese") *Bitter Memories: The Fall of Saigon*. November 10, 2017.
- Jeffrey Bub** (Univ. of Maryland) *Bananaworld: Quantum Mechanics for Primates*. November 3, 2017.
- Adam Ruben** (Science Channel, "Outrageous Acts of Science") *Public Perception of Science: Lessons From a Dead Sheep*. October 27, 2017.
- William Hogan** (Founder and Past Executive Director of California's Innovation Hub for Defense, Energy and Aerospace (iDEA Hub)) *From Innovation to Actualization: A Perspective From Silicon Valley*. October 20, 2017.

John Krakauer (Johns Hopkins School of Medicine) *What Are We Asking When We Ask How the Brain Works*. October 13, 2017.

Ann Todd (Author) *OSS Operation Black Mail*. October 9, 2017.

2016 – 2017

Sharon Weinberger (Author) *The Imagineers of War: The Untold Story of DARPA, the Pentagon Agency That Changed the World*. September 22, 2017.

Patrick Peplowski and Rachel Klima (JHU/APL) *Mercury's Dark Secret*. September 8, 2017.

Max Bergmann (Senior Fellow, Center for American Progress) *Rethinking Russian Active Measures*. September 1, 2017.

Brock Wester and Nathan Crone (JHU/APL and JHU School of Medicine) *Individual Finger Control of the Modular Prosthetic Limb (MPL) Using Electrocochography (ECoG)*. August 25, 2017.

Nour E. Raouafi and Nicola J. Fox (JHU/APL) *Parker Solar Probe: The Mission's Deep Roots in the History of Solar Eclipses*. August 4, 2017.

Dan Green (The Washington Institute for Near East Policy) *In the Warlords' Shadow: Special Operations Forces, the Afghans, and Their Fight Against the Taliban*. July 21, 2017.

Stephen Phillips (National Security Analysis Department, JHU/APL) *Developing the Proximity Fuze*. June 30, 2017.

Dean Hamer (Scientist Emeritus, National Institutes of Health; Co-Producer and Director, "A Place in the Middle") *Queer Science*. June 23, 2017.

Chunsheng Wang (Univ. of Maryland) *Advanced Materials for Li-Ion Batteries: Applications in EV Technology and the Impact on DoD Systems*. June 16, 2017.

Sandy Grimes (CIA (Ret.)) *Circle of Treason: A CIA Account of the Traitor Aldrich Ames and the Men He Betrayed*. June 9, 2017.

Kenneth Johnson (Writer, Producer, Director) *Using Popular Science Fiction to Promote Thought, Tolerance and Unity*. June 2, 2017.

Ravi F. Saraf (Chemical and Biomolecular Engineering, Univ. of Nebraska – Lincoln) *Single Electron and Single Molecule Devices: Nanoscience to Nanotechnology*. May 26, 2017.

Russell J. Hemley (George Washington Univ.) *A New World of Materials in Extreme Environments*. May 19, 2017.

Michael Bourke (Chief, Behavioral Analysis Unit, United States Marshals Service) *The Psychology Behind Child Sex Offenders*. May 12, 2017.

- Mitchell Zuckoff** (Boston University) *13 Hours: The Inside Account of What Really Happened in Benghazi*. May 5, 2017.
- Mark Patrick** (Chief, Information Management Division, Joint Staff Secretariat) *A Holistic Approach to Records and Information Management*. April 28, 2017.
- Chris Gould** (NC State Univ.) *Are Fundamental Constants Actually Constant? Nuclear Physics and the Oklo Natural Nuclear Reactors*. April 21, 2017.
- Nick Jellicoe** (Naval Institute Press) *JUTLAND: The Unfinished Battle*. April 14, 2017.
- Barry Gordon** (Johns Hopkins and Johns Hopkins Medicine) *Autism: What Is It, What Can Be Done, What Might Be Done?* April 7, 2017.
- Hans Mair, Bob Ferguson, Mary Anne Espenshade, Danielle Zack, Jennifer Hedlund, Steven Lutz, David Steigerwald, and John Meyer** (JHU/APL) *A Tribute to Scott Joplin*. March 31, 2017.
- Alice Bowman** (JHU/APL) *Reaching for New Horizons*. March 24, 2017.
- Col. William Reeder Jr.** (U.S. Army Ret.) *Through the Valley: My Captivity in Vietnam*. March 17, 2017.
- Gary Ackerman** (National Consortium for the Study of Terrorism and Responses to Terrorism (START) at Univ. of Maryland) *More Bang for the Buck? : Assessing the Threat of Terrorists and Emerging Technologies*. March 3, 2017.
- Freeman Hrabowski** (President, University of Maryland Baltimore County) *Holding Fast to Dreams: Creating a Climate of Success for All Students*. February 24, 2017.
- John R. Benedict Jr.** (JHU/APL) *Power and Warfighting in the 21st Century*. February 17, 2017.
- George Percivall** (CTO and Chief Engineer, Open Geospatial Consortium) *Innovations in Geodata Management, Integration and Analytics From the Open Geospatial Consortium*. February 10, 2017.
- John Park** (Harvard Kennedy School Belfer Center) *The Sanctions Paradox: North Korea, Inc.'s Accumulated Learning in Evading Sanctions*. February 3, 2017.
- Timothy J. Jorgensen** (Georgetown Univ.) *Strange Glow: The Story of Radiation*. January 27, 2017.
- Martin Libicki** (U.S. Naval Academy) *Cyberspace in Peace and War*. January 20, 2017.
- Jim Cole** (Special Agent, Cyber Crimes Center, Child Exploitation Investigations Unit, DHS) *Beyond the Image: Using Technology to Identify and Rescue Children of Child Exploitation*. January 13, 2017.
- Col. Douglas Macgregor** (U.S. Army Ret.) *Margin of Victory: Five Battles That Changed the Face of Modern War*. January 6, 2017.

- VADM Mark Fox** (U.S. Navy Ret., VP Customer Relations, Huntington-Ingalls Industries) *Reflections of a Carrier Aviator From 1980 to 2016*. December 16, 2016.
- Alan D. Zimm** (JHU/APL) *The Perils of Technological Transformation: A Critical Analysis of the Attack on the Fleet at Pearl Harbor*. December 7, 2016.
- MG Bob Scales** (U.S. Army Ret.) *Scales on War: The Future of America's Military at Risk*. December 2, 2016.
- Donald M. Goldstein** (Emeritus Professor, Univ. of Pittsburgh) *Pearl Harbor in the Perspective of 75 Years*. November 30, 2016.
- Alfred Scott McLaren** (U.S. Navy Ret., Naval Institute Press) *Silent and Unseen: On Submarine Patrol During the Cold War*. November 16, 2016.
- Andrew Jampoler** (U.S. Navy Ret., Naval Institute Press) *Embassy to the Eastern Courts: America's Secret First Pivot Toward Asia, 1832 - 1837*. November 11, 2016.
- Bob Bailey** (Behavior by Bailey) *A Brief History and Some Applications of Terrestrial, Aerial, and Aquatic Trained Animal Behavior Systems*. November 4, 2016.
- Michael J. Neufeld** (Smithsonian Institution) *The Difficult Birth of NASA's Pluto Mission*. October 28, 2016.
- Antonio DeSimone and Nicholas Horton** (JHU/APL) *Sony's Nightmare Before Christmas: The 2014 Cyber Attack*. October 21, 2016.
- Allison Ratto** (Children's National Health System) *Autism's Full Spectrum: The Clinical Science of Identification and Treatment*. October 14, 2016.
- James Ira Thorpe** (NASA Goddard Space Flight Center) *LISA Pathfinder and the Road to Space-Based Gravitational Wave Observatories*. October 7, 2016.
- 2015 - 2016**
- Vincent P. Manno** (Olin College of Engineering) *Rethinking Foundational Engineering Education*. September 30, 2016.
- BG Robert S. Spalding III** (U.S. Air Force) *Economic Elements of Chinese Competition*. September 23, 2016.
- Jose C. Florez MD PhD** (Massachusetts General Hospital) *Clinical Translation of Genetic Predictors for Type 2 Diabetes*. September 16, 2016.
- Paul Jaffe** (Naval Research Laboratory) *The Opportunity of Space Solar*. September 9, 2016.
- Michael D. Griffin** (Chairman and CEO, Schafer Corp.) *Delta 180: Origins and Significance in Missile Defense and Beyond*. September 8, 2016.

- Joshua M. Epstein** (JHU Department of Emergency Medicine and Center for Advanced Modeling) *Agent Zero and Generative Social Science*. September 2, 2016.
- Franco Einaudi** (Director, Earth Sciences Division Ret., NASA Goddard) *Climate Change and Its Challenges*. August 25, 2016.
- Michael A. Caruso** (Independent Consultant) *EMP and the Concern for Data Center Protection*. July 15, 2016.
- MG Richard J. Cripwell CBE** (Defence Attaché and Head of the British Defence Staff in the United States) *Better Together? – Lessons and Reflections From a Career in Coalitions*. June 24, 2016.
- Emily Riehl** (JHU Mathematics Dept.) *A Solution to the Stable Marriage Problem*. June 22, 2016.
- Sarah Bergbreiter** (Univ. of Maryland College Park) *Tiny Leaps for Robot Kind: Mixing Microfabrication and Robotics*. June 17, 2016.
- Jeff Plescia** (JHU/APL) *Lost Landers – Unsolved Mysteries*. June 10, 2016.
- Charles Clark** (Joint Quantum Institute, Univ. of Maryland and National Institute of Standards and Technology) *How Quantum Mechanics Cracked the Nuclear Code*. June 3, 2016.
- Dwight Hughes** (Naval Institute Press) *A Confederate Biography: The Cruise of the CSS Shenandoah*. May 20, 2016.
- K. T. Ramesh** (JHU Decker Professor of Science & Engineering and Director, Hopkins Extreme Materials Institute) *Keeping Your Head in the Game: The Dynamics of Traumatic Brain Injury*. May 13, 2016.
- Janelle Wong** (Univ. of Maryland, Asian American Studies Program and Resource Center) *Asian Americans and the 2016 Election*. May 6, 2016.
- Gene J. Blatt** (Hussman Institute for Autism) *The Science of Autism*. April 29, 2016.
- John C. Mather** (NASA Goddard Space Flight Center, 2006 Nobel Prize for Physics) *Beneficial Catastrophes From the Big Bang to the End: How Far Can We Go?* April 26, 2016.
- Shawn Usman** (National Geospatial Intelligence Agency) *The Antineutrino Global Map (AGM)*. April 22, 2016.
- Andrew Jampoler** (Naval Institute Press) *ADAK: The Rescue of Alfa Foxtrot 586*. April 15, 2016.
- Christine Fox** (JHU/APL) *X11 Strategy Analysis – What We Learned in 2015*. April 8, 2016.
- William Jones** (Princeton University) *The Universe as a Lab for Fundamental Physics: Results From Spider and Future Long-Duration Stratospheric Balloon Missions*. April 1, 2016.
- Richard Danzig** (JHU/APL) *The National Security Consequences of Increasing Technological Speed of Change, Complexity, and Coupling*. March 25, 2016.

- Kimberly Scott** (Arizona State University) *Becoming Our Selves in This Digital Age*. March 21, 2016.
- Philip Graff** (JHU/APL) *The Chirp Heard 'Round the World: Gravitational Waves, LIGO, and a New Era of Astronomy*. March 18, 2016.
- ADM Michelle Howard** (Vice Chief of Naval Operations, U.S. Navy) *Cyber War App*. March 4, 2016.
- Philip Mudd** (Consultant; Central Intelligence Agency Ret.) *The HEAD Game: Become a High Efficiency Analytic Decision Maker*. March 4, 2016.
- Hans Mair** (JHU/APL) *U-35 Hurrah, Hurrah, Hurrah!* February 26, 2016.
- Wanda Austin** (Aerospace Corp.) *Diversity and STEM – Building a More Inclusive Future*. February 19, 2016.
- LtCol Seth Folsom** (U.S. Marine Corps) *Where Youth and Laughter Go: With “The Cutting Edge” in Afghanistan*. February 12, 2016.
- LTG Vincent Stewart** (U.S. Marine Corps; Director, Defense Intelligence Agency) *An Evolving Defense Intelligence Enterprise*. February 5, 2016.
- Pierre Thuot** (JHU/APL) *The Power of Teamwork Knows No Limits – AKA Murphy’s Law at Mach 25*. January 29, 2016.
- Harlan Ullman** (The Killowen Group) *A Brains-Based Approach to Strategic Thinking*. January 15, 2016.
- BG Harold “Buck” Adams** (U.S. Air Force Ret., The Potomac Institute) *Operating at the Edge of Space at 2,200 MPH*. January 8, 2016.
- Xuanhong Cheng and James C. M. Hwang** (Lehigh University) *Broadband Electrical Detection of Individual Biological Cells*. December 11, 2015.
- J. Michael Wenger** (Author) *No One Avoided Danger: NAS Kaneohe Bay and the Japanese Attack of 7 December 1941*. December 10, 2015.
- Marc Wortman** (Author) *How the Navy Learned to Fly in World War I*. December 4, 2015.
- David Goldstein** (Naval Research Laboratory) *Acoustic Black Holes in the Laboratory*. November 20, 2015.
- Daniel Friedman** (National Renewable Energy Laboratory) *Progress and Opportunities for Next-Generation Ultrahigh-Efficiency Multijunction Solar Cells*. November 13, 2015.
- James N. Miller** (JHU/APL) *When Major Powers Meet in Cyberspace: W(h)ither Strategic Stability?* October 30, 2015.

Charles Neimeyer (Author) *War in the Chesapeake: The British Campaigns to Control the Bay, 1813-1814*. October 26, 2015.

David McQueeney (IBM Research) *The IBM Global Technology Outlook*. October 23, 2015.

ADM Nirmal Verma (Indian Navy Ret., U.S. Naval War College) *Emerging Maritime Challenges in the Indian Ocean Area: An Indian Perspective*. October 16, 2015.

GEN Bruce Carlson (U.S. Air Force Ret.; Former Director, NRO) *Learning Leadership – We Can All Get Better*. October 9, 2015.

Pablo Iglesias (JHU ECE Cellular Signaling and Control Laboratory) *Biased Excitable Networks: How Cells Direct Motion in Response to Gradients*. October 2, 2015.

2014 – 2015

Jason Benkoski (JHU/APL) *Mimicking Skin: Multifunctional Coatings That Adapt to the Environment and Undergo Self-Repair*. September 25, 2015.

LTG Rhett Hernandez (U.S. Army Ret., Army Cyber Institute, CyberLens LLC) *Cyberspace – An Operational Domain With Significant Challenges and Unprecedented Opportunity*. September 18, 2015.

Brian R. McEnany (Author) *For Brotherhood and Duty: The Civil War History of the West Point Class of 1862*. September 4, 2015.

Bryan Jackson (IBM Research – Almaden) *IBM TrueNorth: A Low-Power Brain-Inspired Computing Processor and Ecosystem*. August 20, 2015.

Michael Eisenstadt (The Washington Institute for Near East Policy) *Martyrdom, Victory, and Expediency in the Decisionmaking of the Islamic Republic of Iran (IRI)*. August 14, 2015.

Amb. John M. Koenig (U.S. Department of State) *A Cyprus Solution in 2016? Why This Intractable Conflict Can Be Solved After a Half Century, and What It Could Mean for the United States*. July 30, 2015.

Ignition Grants Winners (JHU/APL) *Ignition Grants Intelligent Systems Center Challenge*. July 21, 2015.

2015 Hart Prize Winners (JHU/APL) *The Hart Prizes for Excellence in Independent Research and Development*. July 10, 2015.

Jane Rigby (NASA Goddard Space Flight Center) *Galaxy Evolution Over Cosmic Time*. June 26, 2015.

Ignition Grants Winners (JHU/APL) *Ignition Grants Mobile Apps Challenge*. June 23, 2015.

Donna Riley (Virginia Tech) *LeChatelier and Warhol: Queering the Conventional Career Trajectory in STEM*. June 19, 2015.

- S. Alan Stern** (Southwest Research Institute) *New Horizons: Nothing Like It in the World – The Exploration of Pluto: July 2015.* June 12, 2015.
- Thom LaBean** (North Carolina State Univ.) *Engineering Molecular Assembly for 3D Electronics.* June 5, 2015.
- Rafael Yuste** (Columbia Univ. Neurotechnology Center) *The Novel Neurotechnologies: Simultaneous 3D All-Optical Imaging and Activation of Neurons in Living Brains.* May 29, 2015.
- Geoffrey Ling** (DARPA Biological Technologies Office) *The Future of Medicine.* May 22, 2015.
- Dwight R. Messimer** (Author) *The Baltimore Sabotage Cell and the U-Boat Deutschland, 1915-1918.* May 19, 2015.
- Michael S. Teitelbaum** (Harvard Law School) *Is the U.S. Falling Behind in Science and Engineering? Strengths, Structural Instabilities, and Perennial Controversies.* May 15, 2015.
- John A. Rogers** (Univ. of Illinois at Urbana-Champaign) *Materials for Unusual Forms of Electronics: From 3D Circuits to Water Soluble Sensors.* May 8, 2015.
- Stamatios M. Krimigis** (JHU/APL) *Being There at Inception: From V-2s to Transits to Solar Probe – APL in Space.* May 1, 2015.
- Joel S. Wit** (U.S.-Korea Institute at JHU School of Advanced International Studies) *Game Change on the Peninsula? Thinking About North Korea's Nuclear Futures.* April 24, 2015.
- LtCol William Hagestad II** (U.S. Marine Corps Ret., Red Dragon Rising) *International Binary Battlefield – Focus the People's Republic of China.* April 21, 2015.
- William Braniff** (National Consortium for the Study of Terrorism and Responses to Terrorism (START)) *Al Qaeda's Jihadism – ISIL's Jihadism: The Making and Remaking of a Modern Ideology.* April 17, 2015.
- Robert Ehrlich** (George Mason Univ.) *The Hunt for the Tachyon.* April 10, 2015.
- Mary Cummings** (Duke Univ. Humans and Autonomy Laboratory) *Man vs. Machine or Man + Machine?* March 27, 2015.
- James L. Green** (NASA Headquarters) *Thaddeus Lowe: Mr. Lincoln's Chief Aeronaut.* March 13, 2015.
- LTG Ronnie Hawkins Jr.** (U.S. Air Force; Director, Defense Information Systems Agency) *Mentoring and Developing Diverse Scientists and Engineers.* March 9, 2015.
- Ignition Grants Winners** (JHU/APL) *Ignition Grants Fall 2014 Healthcare Edition.* March 6, 2015.
- Christine Fox** (JHU/APL) *X11 Strategy Analysis – What Is It, and What Did We Learn?* February 13, 2015.

Samuel M. Stavis (National Institute of Standards and Technology) *Nanofabricated Devices, Optical Nanoscopy, and Nanoscale Particles*. January 30, 2015.

John Steinbruner (Director, Center for International and Security Studies at Maryland (CISSM)) *Anticipating Climate Change Mitigation*. January 23, 2015.

Philip Koopman (Carnegie-Mellon Univ.) *Case Study of Toyota Unintended Acceleration and Software Safety*. January 16, 2015.

VADM Walter E. Carter Jr. (U.S. Naval Academy) *Producing Future Leaders of Consequence*. January 9, 2015.

Thomas Dolby Robertson (JHU) *The Road to MIDI Hell Is Paved With Great Inventions*. January 5, 2015.

Steven L. Rolston (Univ. of Maryland) *Where Is My Quantum Computer?* December 12, 2014.

Michael Kelly (JHU/APL) *Multi-Spectral Imaging System: Background and Status*. December 5, 2014.

Mason Peck (Cornell Univ.) *Making Space: Opportunities to Transform Space Science and Exploration Thanks to the Commoditization of Spacecraft*. November 21, 2014.

Neal S. Bergano (TE Connectivity Subcom) *Undersea Fiber Optic Cables – Enabling a Connected World*. November 14, 2014.

Beth Laura O’Leary, Milford Wayne Donaldson, P. J. Capelotti, and Ann Garrison Darrin (Univ. of New Mexico, Milford Wayne Donaldson FAIA Inc., Pennsylvania State Univ., and JHU/APL) *Archaeology and Heritage of the Human Movement Into Space*. November 7, 2014.

Nicky Fox (JHU/APL) *Solar Probe Plus: Humanity’s First Visit to Our Star*. October 24, 2014.

Mica R. Endsley (U.S. Air Force Chief Scientist) *Situation Awareness: Current and Future Challenges*. October 17, 2014.

Ben Shneiderman (Univ. of Maryland) *Information Visualization for Knowledge Discovery: Big Insights From Big Data*. October 10, 2014.

Tomás Palacios (Massachusetts Inst. of Technology) *Atom-Thick Materials for the Next Revolution in Electronics*. October 6, 2014.

2013 – 2014

Ignition Grants Winners (JHU/APL) *Ignition Grants Central Spark Edition*. September 19, 2014.

Hassan Abbas (National Defense Univ.) *The Taliban Revival: The India-Pakistan Nuclear Rivalry and U.S. Drawdown in Afghanistan*. September 12, 2014.

- Amanda Simpson** (Army Energy Initiatives Task Force) *Intersection of Test Flight, Energy, and Vacuum Tubes*. June 18, 2014.
- 2014 Hart Prize Winners** (JHU/APL) *The Hart Prizes for Excellence in Independent Research and Development*. June 13, 2014.
- Stuart W. Leslie** (JHU Dept. of History of Science and Technology) *Spaces for the Space Age: Southern California's Architecture of Innovation*. May 30, 2014.
- Herbert S. Lin** (National Research Council) *Reflections on Cyber Warfare: Some Unresolved Policy and Strategic Issues*. May 9, 2014.
- Barton P. Miller** (Univ. of Wisconsin – Madison) *Software Assurance Marketplace*. May 2, 2014.
- Ignition Grants Winners** (JHU/APL) *Ignition Grants Fall 2013 Edition*. April 25, 2014.
- Dawn Biehler** (Univ. of Maryland, Baltimore County) *Back-Alley Ecology: Rats, Homes, and Community in 1940s Baltimore, and Lessons for Urban Ecology Today*. April 17, 2014.
- Anne Speckhard** (Georgetown Univ. Medical School) *Talking to Terrorists: Understanding the Psycho-Social Motivations of Militant Jihadi Terrorists*. April 11, 2014.
- Giuseppe D'Aguzzo** (Aegis Technologies) *Extraordinary Optical and Acoustic Transmission in Metamaterials*. April 4, 2014.
- Amb. Donald P. Gregg** (Former Ambassador to the Republic of Korea) *Korea*. March 28, 2014.
- Thomas H. Staal** (U.S. Agency for International Development) *Syria: Origins of the Conflict*. March 21, 2014.
- Ralph Langner** (Langner Group) *Cyber-Physical Attack Engineering*. March 11, 2014.
- Jon Gertner** (Author) *Revisiting the Idea Factory: What Can Bell Labs Teach Us About Innovation and the Management of Ideas?* March 7, 2014.
- Willie E. May** (National Institute of Standards and Technology) *The National Institute of Standards and Technology (NIST): Its Impact on Innovation, Economic Security, and Quality of Life*. February 28, 2014.
- David Robarge** (Central Intelligence Agency) *Archangel: CIA's Supersonic A-12 Reconnaissance Aircraft*. February 21, 2014.
- Willie Padilla** (Boston College) *Electromagnetic Metamaterials*. January 23, 2014.
- Stamatios M. Krimigis** (JHU/APL) *Voyager's Odyssey: From Earth to the Galaxy in Thirty-Five Years*. January 17, 2014.
- Jeff J. S. Black** (St. John's College) *Privacy, Ancient and Modern*. January 8, 2014.

Alfredo Quiñones-Hinojosa (Johns Hopkins Medical Institutions) *Engines of Brain Cancer Migration*. December 11, 2013.

Jerry Buckley, Margo Tank, and Steve Bisbee (BuckleySandler LLC and eOriginal) *Electronic Signatures and Records: The Intersection of Law and Technology*. December 6, 2013.

Paul Rosenzweig (Professorial Lecturer in Law, George Washington Univ. School of Law) *Cyber Warfare: The Economics, Policy, and Law of Cyber Conflict*. November 22, 2013.

Thomas Hazlett (George Mason Univ.) *The POLITICAL SPECTRUM: Regulators, Interest Groups, and the Struggle to Liberate Wireless Technologies of Freedom*. November 13, 2013.

Eric W. Boyle (National Museum of Health and Medicine) *From Quackery to Complementary Medicine: A History of Combating Alleged Health Fraud Since the Early 20th Century*. November 1, 2013.

Col. Timothy P. Alben (Massachusetts State Police) *MANAGING RISK: The Boston Marathon and Changing Security for Large Public Gatherings*. October 11, 2013.

2012 - 2013

Ignition Grants Winners (JHU/APL) *Ignition Grants Spring 2013 Edition*. August 16, 2013.

LTG Michael D. Barbero (U.S. Army Ret.; Former Director, Joint IED Defeat Organization) *The Global and Enduring IED Challenge*. July 19, 2013.

Nergis Mavalvala (Massachusetts Inst. of Technology) *Beyond the Quantum Limit in Gravitational Wave Detectors*. June 28, 2013.

Nader Engheta (Univ. of Pennsylvania) *Of Waves, Electrons, and Metamaterials*. June 21, 2013.

Capt. Michael Weiner (U.S. Navy, DoD/Veterans Affairs Interagency Program Office) *DoD Electronic Health Records*. June 3, 2013.

B. B. Rath (Naval Research Laboratory) *Energy After Oil*. May 31, 2013.

2013 Hart Prize Winners (JHU/APL) *The Hart Prizes for Excellence in Independent Research and Development*. May 17, 2013.

Kevin Kallaugh (The Economist) *From Pen to Pixel: Political Cartoons and the Future of Satire*. May 10, 2013.

Edward G. Amoroso (AT&T) *Reinventing Enterprise Network Security*. May 3, 2013.

Vinton G. Cerf (Google) *Re-Inventing the Internet*. April 29, 2013.

Carey M. Lisse (JHU/APL) *Prospects for Life and Human Habitability Around Nearby Stars: Many Possible Homes for Our Elder (?) Race, but the Neighbors Are Likely Bacteria*. April 26, 2013.

Vincent W. S. Chan (Massachusetts Inst. of Technology) *Optical Flow Switching*. April 23, 2013.

George Lucas (Naval Postgraduate School) *Legal and Ethical Precepts Guiding Research and Use of Emerging Military Technologies*. April 19, 2013.

Stephanie Hill (Lockheed Martin) *Information Technology Systems and Services and STEM*. February 22, 2013.

Jason Heikenfeld (Univ. of Cincinnati Novel Devices Laboratory) *Fluidic Devices for Tomorrow's Defense Applications: Displays, Electronics, Biosensors, and More* February 15, 2013.

John Boice (National Council on Radiation Protection and Measurements) *NCRP and the Study of a Million U.S. Radiation Workers and Veterans*. February 8, 2013.

Ignition Grants Winners (JHU/APL) *Ignition Grants Cycle 5 Colloquium*. January 24, 2013.

Jason Landrum (National Oceanic and Atmospheric Administration) *Federal Action to Reduce the Impacts of Marine Debris: Responses to Pervasive Problems and Natural Disaster Events*. January 18, 2013.

2012 Hart Prize Winners (JHU/APL) *The Hart Prizes for Excellence in Independent Research and Development*. November 30, 2012.

Norman Friedman (Defense Analyst) *UAVs in Strike Warfare*. November 9, 2012.

Polly Nayak (Independent Consultant) *India: Decision Making on External Security Issues*. November 2, 2012.

Ramon E. Lopez (Univ. of Texas at Arlington) *The Science of Space Weather*. October 19, 2012.

2011 - 2012

Ignition Grants Winners (JHU/APL) *JHU/APL STEM Ignition Grants*. September 28, 2012.

Soner Cagaptay (The Washington Institute) *Turkey's Foreign Policy Pivot*. September 20, 2012.

Dan Sievenpiper (Univ. of California, San Diego) *Artificial Impedance Surfaces: Passive, Active, and Nonlinear Periodic Structures for Controlling Electromagnetic Surface Currents*. August 24, 2012.

John Nagl (Center for a New American Security) *Learning to Eat Soup With a Knife: Counterinsurgency Lessons From Iraq and Afghanistan*. June 15, 2012.

Steven Chu (Secretary of Energy, 1997 Nobel Prize for Physics) *America's Role in Meeting the Energy Challenge*. June 1, 2012.

Maj. Joe Thomas and Marc A. Kolodner (U.S. Army and JHU/APL) *Signatures Exploitation in the Transshipment Zone*. May 18, 2012.

Robert Cahalan (NASA Goddard Space Flight Center) *Solar Irradiance and Climate - What's New? What's Next?* May 11, 2012.

Ignition Grants Winners (JHU/APL) *Ignition Grants Cycle 3 Colloquium*. May 4, 2012.

Mark T. Maybury (U.S. Air Force Chief Scientist) *Cyber Vision 2025: Air Force Cyber S&T Vision*. April 11, 2012.

David W. Orr (Oberlin College) *Twenty-First Century Sustainability, Resilience, and National Security*. April 6, 2012.

Scott M. Tyson (Author) *Pardon Me, but Your Paradoxes Are Showing!* March 30, 2012.

Barbara Slavin (Atlantic Council) *What Should We Do About Iran?* March 16, 2012.

Michael E. O'Hanlon (Brookings Institution) *Bending History?* March 9, 2012.

Vanda Felbab-Brown (Brookings Institution) *The Crime-Militancy Nexus: A Witch's Brew or a Myth?* March 2, 2012.

Ayanna Howard (Georgia Institute of Technology) *SnoMotes: Robotic Scientific Explorers for Understanding Climate Change*. February 17, 2012.

Rengaswamy Srinivasan (JHU/APL) *Advanced Lithium Batteries: One Way to Use, Many Ways to Abuse*. February 3, 2012.

Adam Riess (JHU Dept. of Physics and Astronomy and the Space Telescope Science Institute, 2011 Nobel Prize for Physics) *Dark Energy and the Cosmic Expansion History*. January 27, 2012.

Randolph L. Sullivan (Nuclear Regulatory Commission) *Overview of the Fukushima Daiichi Accident*. January 20, 2012.

Russell H. Taylor (JHU Dept. of Computer Science) *Medical Robotics and Computer-Integrated Interventional Medicine*. January 13, 2012.

Richard Gilly (Patent Attorney) *Weathering the Storm: Patents in the Cloud*. January 6, 2012.

2011 Hart Prize Winners (JHU/APL) *The Hart Prizes for Excellence in Independent Research and Development*. December 9, 2011.

W. P. Andrew Lee (JHU School of Medicine) *Immune Modulation for Hand Transplantation*. December 2, 2011.

Kelly Brunt (NASA GESTAR – Morgan State Univ.) *Antarctic Ice-Shelf Calving Triggered by the Japanese Earthquake and Tsunami, March 2011*. November 18, 2011.

Ignition Grants Winners (JHU/APL) *Ignition Grants Cycle 2 Colloquium*. November 4, 2011.

John R. Schmidt (George Washington Univ.) *The Unraveling: Pakistan in the Age of Jihad*. October 28, 2011.

Isaac Gertman (Israel Oceanographic and Limnological Research) *Amazing Interannual Variability of the Dead Sea Hydrological Regime*. October 21, 2011.

VADM Walter B. Massenburg (U.S. Navy Ret.; President, Association of Naval Aviation and Raytheon Integrated Defense Systems) *Centennial of Naval Aviation ... the Next 100 Years?* October 14, 2011.

2010 - 2011

Carolina Cruz-Neira (Univ. of Louisiana at Lafayette) *A Digital Wonderland: Virtual Reality Applications for Everybody*. September 30, 2011.

Ignition Grants Winners (JHU/APL) *Ignition Grants Cycle 1 Colloquium*. June 17, 2011.

LCDR Mike Touse (Naval Postgraduate School) *Design, Fabrication, and Characterization of a Micromechanical Directional Microphone*. June 10, 2011.

Larry Robinson (National Oceanic and Atmospheric Administration) *Role of NOAA After the BP Deepwater Horizon Oil Spill*. June 3, 2011.

Rama Chellappa (Univ. of Maryland) *Compressive Sensing for Computer Vision*. May 24, 2011.

David Harriman (Author) *Do Scientists Need Philosophy?* May 13, 2011.

David Alberts (Office of the Assistant Secretary of Defense (Networks and Information Integration) and DoD Chief Information Officer) *The Agility Imperative*. April 22, 2011.

Joe Rosen (George Washington Univ.) *Other Universes*. April 15, 2011.

Dennis McCarthy (U.S. Naval Observatory) *Evolution of Timekeeping*. April 8, 2011.

Peter Pronovost (Johns Hopkins Medical Institutions) *Safe Patients, Smart Hospitals*. April 1, 2011.

Norman Polmar (Analyst) *Project Azorian: The CIA and the Raising of the K-129*. March 25, 2011.

Ren Cahoon (Archivist) *Gaping Holes in Our History: A Story of Impetuous Innovation*. March 18, 2011.

David E. Hoffman (Journalist) *Two Sides of Mikhail Gorbachev at the End of the Cold War: Decisions on Strategic Defenses and Biological Weapons, 1985-1991*. March 11, 2011.

Marvin W. Barrash (Author) *U.S.S. Cyclops - Lost Without a Trace*. March 4, 2011.

Darryll J. Pines (Univ. of Maryland) *Emerging Non-GPS Navigation Technology for Aerospace Systems*. February 25, 2011.

Bob Buus (Former Bell Labs) *The Forefathers of Radio*. February 18, 2011.

Richard Danzig (Former Secretary of the Navy) *Bioterrorism: How Should We Assess the Risk, and How Should We Prepare for It?* February 11, 2011.

Charles L. Bennett (JHU Dept. of Physics and Astronomy) *Big Bang for the Buck: Cosmology From WMAP*. January 14, 2011.

LCDR Robert Kerchner and Nancy M. Haegel (Naval Postgraduate School) *Vehicle Mounted Identification Friend or Foe (VMIFF): Leveraging Existing Targeting Systems for Fratricide Mitigation*. January 7, 2011.

Kathryn Flanagan (Space Telescope Science Institute) *The James Webb Space Telescope: We Can See the Beginning*. December 10, 2010.

2010 Hart Prize Winners (JHU/APL) *The Hart Prizes for Excellence in Independent Research and Development*. December 3, 2010.

Virginia W. Lunsford (United States Naval Academy) *The War Against Piracy: The Golden Age and Now*. November 19, 2010.

Michael Greenberger (Univ. of Maryland) *Our Economic Insecurity and Its Relationship to the Overall Security of the Nation*. November 12, 2010.

Rob Randell (VMware) *Architecting and Building a Secure Virtual Infrastructure and Private Cloud*. November 5, 2010.

Peter Volkovitsky (National Institute of Standards and Technology) *History of the Soviet Nuclear Weapon Project*. October 29, 2010.

Jonathan Pevsner (Kennedy Krieger Institute) *The Mind of Leonardo Da Vinci*. October 15, 2010.

Marc A. Kolodner (JHU/APL) *APL Signatures Exploitation Program*. October 8, 2010.

2009 – 2010

Patricia P. Driscoll (Frontline Defense Systems) *The Art of the Possible*. September 23, 2010.

Christos Bolakis and Gamani Karunasiri (Naval Postgraduate School) *MEMS Based Sensors for THz Imaging*. June 3, 2010.

Naim Merheb (JHU/APL) *Doing APL Stuff in Baghdad*. May 26, 2010.

Peter J. McDonnell (JHU Wilmer Eye Institute) *The Wilmer Eye Institute and Health Care Reform*. May 21, 2010.

Michael Berman (Catbird) *Security, Protection, and Compliance for Virtual Infrastructure (And the Cloud) – Building Security Into the Fabric*. May 14, 2010.

Jin U. Kang (JHU Dept. of Electrical and Computer Engineering) *Photonics Applications: Past, Present, and Future*. May 7, 2010.

Deborah Elam (General Electric Company) *Leadership: Transforming Diversity Into Inclusion*. April 23, 2010.

- Hrvoje Jasak** (Univ. of Zagreb) *OpenFOAM: Object-Oriented Software in Computational Continuum Mechanics*. April 16, 2010.
- Howard Cox** (U.S. Department of Justice) *Cybercrime Trends 2010*. April 9, 2010.
- Joel S. Wit** (JHU School of Advanced International Studies) *Will North Korea Give Up Its Nuclear Weapons?* April 2, 2010.
- Richard Howard** (Verisign iDefense) *2010 Cyber Threats and Trends*. March 26, 2010.
- Joshua Epstein** (Brookings Institution) *Agent-Based Computational Modeling in Public Health: From Playground to Planet*. March 19, 2010.
- Stephen C. Schimpff** (Univ. of Maryland Medical Center) *The Future of Medicine – Megatrends in Medical Science and in Healthcare Delivery*. March 12, 2010.
- Ronald Marcell** (Immigration and Customs Enforcement) *Undercover Operations in Counter-Proliferation Investigations*. March 5, 2010.
- Joseph S. Francisco** (President, American Chemical Society) *Chemistry and Its Role in National Security and the STEM Challenge*. February 25, 2010.
- Martin Murphy** (Center for Strategic and Budgetary Assessments) *Somali Piracy: The Implications for International Security*. February 19, 2010.
- RADM David Titley** (Oceanographer and Navigator of the Navy) *The U.S. Navy's Task Force on Climate Change*. January 29, 2010.
- Jeffrey S. Bardin** (ITSolutions) *Extremist Jihadi Social Networks*. January 22, 2010.
- Scott Pace** (George Washington Univ.) *International Opportunities and Challenges for U.S. Space Policy*. December 11, 2009.
- 2009 Hart Prize Winners** (JHU/APL) *The Hart Prizes for Excellence in Independent Research and Development*. December 1, 2009.
- Roger D. Launius** (National Air and Space Museum) *Perspectives on the Past, Present, and Future of Human Spaceflight*. November 20, 2009.
- LTG James A. Abrahamson** (U.S. Air Force Ret., former director of the Strategic Defense Initiative Organization) *The Strategic Defense Initiative, JHU/APL, and the Cold War*. November 13, 2009.
- Brad Parkinson** (Stanford Univ.) *The Origins of GPS and the Role of APL in the Technology*. October 27, 2009.
- George F. Riley** (Georgia Institute of Technology) *Network Simulation With NS3*. October 23, 2009.
- Nirdhar Khazanie** (Northrop Grumman) *Information Sharing Behind Firewalls*. October 16, 2009.

2008 – 2009

- Capt. Mark B. Lyles** (U.S. Navy Bureau of Medicine and Surgery) *Medical Geology: Dust Exposure and Potential Health Risks in the Middle East*. September 25, 2009.
- RADM Jay A. DeLoach** (U.S. Navy Ret., Naval History and Heritage Command) *Hispanic Americans in American Naval History*. September 18, 2009.
- Joseph D'Aleo** (Meteorologist) *Climate Change*. June 11, 2009.
- Michael C. MacCracken** (Climate Institute) *Climate Change – A Challenge We Must Address*. June 5, 2009.
- Richard Talbott** (JHU/APL) *Information Assurance Lessons From the Past, WWII, and Today*. May 29, 2009.
- Martin P. Harmer** (Lehigh Univ.) *Complexions: New States of Matter at Interfaces*. May 22, 2009.
- Kal Shastri** (Lightwire) *Journey of a Physicist in the Engineering World*. May 15, 2009.
- Waleed Abdalati** (Univ. of Colorado, Cooperative Institute for Research in Environmental Sciences) *Dramatic Changes in Polar Ice: Are We Waking Sleeping Giants?* May 8, 2009.
- George Helfrich** (JHU/APL Ret.) *APL and the U.S. Navy in the Deserts of New Mexico*. April 24, 2009.
- Ned Tillman** (Growth Adventures) *The Chesapeake Watershed – Past, Present, and Future*. April 17, 2009.
- Charles Seife** (New York Univ.) *Fusion, Politics, and the Press*. April 10, 2009.
- Marcus Jones** (U.S. Naval Academy) *U.S. Strategic Bombing in Doctrine and Practice in World War II: The Case of the European Theater*. April 3, 2009.
- James C. M. Hwang** (Lehigh Univ.) *RF MEMS Technology for Space Applications*. March 27, 2009.
- Giles Dorransoro** (Carnegie Endowment for International Peace) *Focus and Exit: An Alternative Strategy for the Afghan War*. March 13, 2009.
- Sudip Bose** (Advocate Christ Medical Center) *On Call in Iraq*. March 6, 2009.
- Reuben Pitts** (NSWC Dahlgren Ret.) *The U.S.S. Vincennes Incident – The Data*. February 27, 2009.
- Slava Rotkin** (Lehigh Univ.) *Transistor Channels “Flying” a Few Nanometers Above the Surface: Novel Physics of “Empty” Space*. February 20, 2009.
- Denise Gray** (General Motors Engineering) *Reinventing GM and the Automobile: From Batteries to Sustainability*. February 13, 2009.

Erik van Ommeren (Sogeti U.S.A. LLC) *Me the Media: Rise of the Conversation Society*. February 6, 2009.

Steven Brams (New York Univ.) *Mathematics and Democracy: Designing Better Voting and Fair-Division Procedures*. January 30, 2009.

Tom Vanderbilt (Author) *Objects in Mirror Are More Complicated Than They Appear: Looking Into Traffic*. January 23, 2009.

Mario Livio (Space Telescope Science Institute) *Is God a Mathematician?* January 16, 2009.

John Adam (Old Dominion Univ.) *"Guesstimation:" Fermi Problems, Orders of Magnitude, and the Goldilocks Principle*. January 9, 2009.

Marcus Noland (Peterson Institute for International Economics) *Arab Economies: Recent Accomplishments and Long-Term Challenges*. December 12, 2008.

Shanker Singham (International Law) *A General Theory of Trade and Competition: Trade Liberalization and Competitive Markets*. December 5, 2008.

2008 Hart Prize Winners (JHU/APL) *The Hart Prizes for Excellence in Independent Research and Development*. November 21, 2008.

Col. David W. Lamm (U.S. Army Ret., National Defense Univ.) *Asymmetry and Change in Future Warfare*. November 14, 2008.

Shuja Nawaz (Strategic Analyst) *Crossed Swords: Pakistan, Its Army, and the Wars Within*. November 7, 2008.

Ellen Ochoa (Astronaut, NASA Johnson Space Center) *Hispanic Heritage Month Colloquium*. October 24, 2008.

Robin Wright (Journalist) *The Future of the Middle East*. October 17, 2008.

2007 – 2008

Anh N. Duong (Science Advisor, Office of the CNO, Pentagon) *Naval Explosives*. May 23, 2008.

Beth Laura O'Leary (New Mexico State Univ.) *Space Archeology and the Lunar Legacy: One Giant Leap for Historic Preservation*. May 16, 2008.

Kenneth Budka (Alcatel-Lucent Bell Labs) *Public Safety Wireless Broadband*. May 9, 2008.

Brandon Southall (National Oceanic and Atmospheric Administration) *Marine Mammals and Noise: Science Applications and Perspectives on a Contentious (And Misrepresented) Issue*. May 2, 2008.

Alan Brandt (JHU/APL) *Waves, Fish, and Submarines: Thirty Years of Hydrodynamics Research at APL*. April 25, 2008.

- Peter Thomson** (Author) *Sacred Sea: A Journey to Lake Baikal*. April 11, 2008.
- Mattias Mountain** (Space Telescope Science Institute) *The Hubble, the James Webb Space Telescope, and Looking to the Future: Space Science at a Cross Road?* April 4, 2008.
- Steven Benner** (Foundation for Applied Molecular Evolution) *Unconventional Forms of Life and Life Detection*. April 2, 2008.
- Jo Anne B. Barnhart** (Former Commissioner, Social Security Administration) *Challenges Facing Social Security*. March 14, 2008.
- James Turner** (National Institute of Standards and Technology) *African-American Technological Contributions: Past, Present, and Future*. February 20, 2008.
- Col. Michael A. Shupp** (U.S. Marine Corps, Legislative Assistant for the Chairman of the Joint Chiefs of Staff) *The Battle of Falluja*. February 15, 2008.
- George Bibel** (Univ. of North Dakota) *Beyond the Black Box: The Forensics of Airplane Crashes*. February 1, 2008.
- Robert Strom** (Univ. of Arizona) *Global Warming and the Human Condition*. January 18, 2008.
- Sam Yee** (JHU/APL) *Upper Atmosphere: Gateway Region for Solar-Terrestrial Interaction*. January 4, 2008.
- Spencer Wells** (National Geographic Society) *Deep Ancestry: Inside the Genographic Project*. December 14, 2007.
- Sten Odenwald** (NASA Goddard Space Flight Center) *The Superstorm of 1859: Learning From the Past to Anticipate Future Consequences*. December 7, 2007.
- 2007 Hart Prize Winners** (JHU/APL) *The Hart Prizes for Excellence in Independent Research and Development*. November 30, 2007.
- Bradley Layton** (Drexel Univ.) *Bionanotechnology and Mechanoevolution*. November 16, 2007.
- Sky Alibhai and Zoe Jewell** (WildTrack) *WildTrack: A Synergy of Wild Beasts, Ancient Tracking Skills, and Modern Techniques for Footprint Identification*. November 7, 2007.
- David Mindell** (Massachusetts Inst. of Technology) *Digital Apollo: Human and Machine in Six Lunar Landings*. November 5, 2007.
- Ernest A. Seglie** (Office of the Secretary of Defense, Director of Operational Test and Evaluation) *The Costs of Unsuitability and Benefits of Building-In Reliability, Availability, and Maintainability*. October 26, 2007.
- William B. Scott** (Author) *Space Wars: The First Six Hours of World War III*. October 12, 2007.

Juan Maldacena (Institute for Advanced Study) *QCD, Strings, and Black Holes: A Duality Between Gravity and Field Theory*. October 5, 2007.

2006 – 2007

Andrew F. Cheng (JHU/APL) *A Tale of Two Asteroids, or Catastrophic Disruption Revisited*. September 28, 2007.

Gadi Evron (Security Evangelist, Beyond Security) *Estonia: Information Warfare and Strategic Lessons*. August 24, 2007.

Jeff Barr (Amazon Web Services) *Building a “Web-Scale Computing” Architecture*. June 6, 2007.

William Dunham (Muhlenberg College) *A Tribute to Euler*. June 1, 2007.

Aravinda Chakravarti (JHU School of Medicine) *Genes for Common, Chronic Diseases*. May 18, 2007.

MG David P. Fridovich (U.S. Army, USSOCAP) *War on Terror in Asia, “Basilan Model” and Indirect Approach*. May 16, 2007.

S. Fred Singer (Science and Environmental Policy Project) *Origin of the Moon*. May 4, 2007.

Greg Jackson (Univ. of Maryland, College Park) *Solid Oxide Fuel Cells: Challenges for Applications Beyond Hydrogen*. April 27, 2007.

Alan Moloff (Consultant) *Special Operations and Disaster Medicine. Common Challenges! Common Solutions?* April 4, 2007.

James G. Rickards (Global-I Advisors, LLC) *Theory and Practice of the New Science of Market Intelligence*. March 23, 2007.

Zee Duron (Harvey Mudd College) *Field Procedures for Tracking Stability in Burning Buildings*. March 16, 2007.

Dwayne Meadows (National Oceanic and Atmospheric Administration) *Riding the World’s Biggest Wave: Preparedness and Recovery Lessons From the 2004 Indian Ocean Tsunami in Thailand*. March 2, 2007.

Ronald Kelly (Federal Bureau of Investigation) *Forensic Aspects of Explosion/Bombing Investigations*. February 23, 2007.

Isaiah Blankson (NASA Glenn Research Center) *Aeronautical Research Activities in Hypersonics at the NASA Glenn Research Center*. February 16, 2007.

Bruce Campbell (Smithsonian Institution) *What Lies Beneath? Using Radar to Look Below the Surface of the Moon and Mars*. February 9, 2007.

David Jacobson (National Institute of Standards and Technology) *Using Neutron Radiography to Study Hydrogen Fuel Cells*. February 2, 2007.

James Bamford (Author) *NSA: A History of Domestic Eavesdropping*. January 19, 2007.

R. Alan King (Author) *Iraq: The Past, the Present, and the Way Ahead*. January 12, 2007.

Barry Geldzahler (NASA) *Next Generation Deep Space Network: Vision for the Next 100 Years*. January 5, 2007.

2006 Hart Prize Winners (JHU/APL) *The Hart Prizes for Excellence in Independent Research and Development*. December 15, 2006.

John R. Benedict Jr. (JHU/APL) *Taking a Long-Term Perspective on U.S. Navy ASW Objectives, Capabilities, and Trends (Historical Survey and Projections, 1940-2020)*. December 8, 2006.

Robert W. Farquhar and Joseph Veverka (JHU/APL and Cornell Univ.) *The Next Steps in Human Space Exploration: What Are the Alternatives?* December 1, 2006.

Michael Vlahos (JHU/APL) *Productive Deterrence: Preserving America at Modernity's End*. November 16, 2006.

Michael Krieger (Office of the DoD Chief Information Officer) *Transforming the Way DoD Shares Information*. November 3, 2006.

Robb Wilcox (JHU/APL) *The Chief of Naval Operations Strategic Studies Group – Science Advisor's Perspective*. October 20, 2006.

Anna Escobedo Cabral (U.S. Treasurer) *Hispanic Heritage Month Colloquium*. October 11, 2006.

2005 – 2006

Christopher Coker (London School of Economics) *Ethics of the Long War*. May 24, 2006.

RADM William J. McDaniel (U.S. Navy Ret.) *Faces of the Tsunami*. May 19, 2006.

Nathaniel Fick (Former Captain, U.S. Marine Corps) *The Wars in Afghanistan and Iraq: A Junior Officer's Perspective on What We've Learned and Where We're Going*. May 12, 2006.

Barry Rubin (Global Research in International Affairs Center) *The Arab Struggle for Democracy in the Middle East*. May 5, 2006.

Col. Geoffrey Ling (U.S. Army, Defense Advanced Research Projects Agency) *Revolutionizing Prosthetics*. April 26, 2006.

Kim Weaver (NASA Goddard Space Flight Center) *New Eyes on the Universe: Observing Beyond Hubble With NASA's Other Space Telescopes*. April 21, 2006.

David F. Dinges (Univ. of Pennsylvania) *Sleep, Fatigue, and Stress: Monitoring Human Behavioral Capability*. April 12, 2006.

- Harold Schmitz** (Chief Scientist, Mars Inc.) *The Science of Cocoa and Chocolate: What Do Migratory Birds and Nitric Oxide Synthesis Have in Common?* March 31, 2006.
- BG Victor N. Corpus** (Armed Forces of the Philippines, Ret.) *The Assassin's Mace: A Worst Case Scenario for the New American Century.* March 24, 2006.
- Michael A. Roberto** (New York Univ. Stern School of Business) *Why Great Leaders Don't Take Yes for an Answer: Managing for Conflict and Consensus.* March 17, 2006.
- Ted G. Kamatchus** (Sheriff, Marshall County, Iowa) *A Sheriff's View of Homeland Security.* March 10, 2006.
- Woodrow Whitlow Jr.** (Director, NASA Glenn Research Center) *Breakthrough Technologies That Enable Space Exploration.* February 17, 2006.
- Frank Doyle** (Univ. of California, Santa Barbara) *A Systems Approach to Modeling and Analyzing Biological Systems.* February 3, 2006.
- Paul Spudis** (JHU/APL) *Robot Precursor Missions for a Human Return to the Moon.* January 27, 2006.
- Ron Beard** (Naval Research Laboratory) *The Future of the UTC Time Scale.* January 20, 2006.
- Theodor Krauthammer** (Pennsylvania State Univ.) *R&D Needs for Effective Blast, Shock, and Impact Mitigation.* January 13, 2006.
- Mark Lewis** (U.S. Air Force Chief Scientist) *Speed as a Critical Issue for the U.S. Air Force.* January 6, 2006.
- Bruce A. Dale** (National Geographic Society) *A Lifetime of BAD Photographs.* December 16, 2005.
- Charles Nicholas** (Univ. of Maryland, Baltimore County) *Who Wrote This Document?* December 9, 2005.
- Steven M. Anlage** (Univ. of Maryland, College Park) *Physics and Applications of Negatively-Refracting Electromagnetic Materials.* December 2, 2005.
- Carey M. Lisse** (JHU/APL and Univ. of Maryland) *Deep Impact and Comet 9P/Tempel 1: From Evolved Surface to Interior Primeval Dust.* November 18, 2005.
- Thomas P. M. Barnett** (Author and Strategic Planner) *Warfighting in the Twenty-First Century.* November 2, 2005.
- Amb. Husain Haqqani** (Carnegie Endowment for International Peace) *Pakistan: Between Mosque, Military, and Nuclear Weapons.* October 28, 2005.
- Kay Jamison** (JHU School of Medicine) *Scientific Exuberance.* October 21, 2005.

Tom Voltaggio (U.S. Environmental Protection Agency) *Responding to Weapons of Mass Destruction Incidents and Natural Disasters*. October 14, 2005.

John C. Sommerer (JHU/APL) *Science and Technology: Why Should We Care?* October 7, 2005.

2004 – 2005

VADM Richard H. Carmona (U.S. Surgeon General) *Hispanic Heritage Month Lecture*. September 30, 2005.

Louise Richardson (Radcliffe Institute for Advanced Study) *Democracy and Counterterrorism: Lessons From the Past*. May 26, 2005.

Norman Polmar (Analyst, Consultant, and Author) *Surprise! U.S. And Western Intelligence and Warning Failures During the Cold War*. May 13, 2005.

Steven Bellovin (Columbia Univ.) *Permissive Action Links and the History of Public Key Cryptography*. May 6, 2005.

Raymond W. Baker (Trinity College) *The Future of Islam: Egypt and the New Islamists*. April 29, 2005.

BG Duane W. Deal (U.S. Air Force) *Beyond the Widget: Columbia Accident Lessons Affirmed*. April 15, 2005.

Robert E. Gold (JHU/APL) *Defending the Earth From Asteroid Impacts*. April 8, 2005.

Ashley Tellis (Carnegie Endowment for International Peace) *U.S.-India Strategic Relations*. April 1, 2005.

Francis M. Deng (JHU School of Advanced International Studies) *A Clash of Identities: Darfur's Crisis in the National Context*. March 18, 2005.

Colin S. Gray (Univ. of Reading, England) *What Do We Know About Future Warfare?* March 16, 2005.

James P. Blair (National Geographic Society) *Where God Lives*. March 11, 2005.

Stephen Flynn (Council on Foreign Relations) *America the Vulnerable: Can the Homeland Be Secured?* March 9, 2005.

John Slaughter (National Action Council for Minorities in Engineering) *Black History: A Time for a New Chapter in Science and Technology*. February 18, 2005.

Vincent Vitto (Charles Stark Draper Laboratory) *The Naval Studies Board and Its Views on Naval Issues*. February 16, 2005.

Hans M. Mark (Univ. of Texas, Austin) *Naval Applications of Electro-Magnetic Guns*. February 11, 2005.

Col. Thomas X. Hammes (U.S. Marine Corps and National Defense Univ.) *The Sling and the Stone: On War in the 21st Century*. February 7, 2005.

Gal Luft (Inst. for the Analysis of Global Security) *Terrorism on the High Seas*. January 28, 2005.

Michael Scheuer (Former Central Intelligence Agency) *They Still Don't Get It: The Danger of Ignoring Reality in the War on Terrorism*. January 20, 2005.

David J. Nagel (George Washington Univ.) *Low-Energy Nuclear Reactions: Problems, Progress, and Prospects*. December 17, 2004.

John M. Carroll (Pennsylvania State Univ.) *Scenarios and Design Cognition*. December 10, 2004.

Stamatios M. Krimigis (JHU/APL) *Cassini at Saturn: Wonders of the Giant Planet Revisited*. December 3, 2004.

Jill Tarter (SETI Inst.) *Search for Extraterrestrial Intelligence: Pulling Signals Out of Cosmic Noise*. November 19, 2004.

Douglas Farah (Author and Journalist) *Diamonds, Weapons, and Passports: The Strategic Challenge of Failed States to U.S. National Security*. November 12, 2004.

Peter Heller (International Monetary Fund) *Confronting Long-Term Fiscal Challenges*. October 29, 2004.

Michael Vlahos (JHU/APL) *The War at Midpassage: Where Do We Go From Here?* October 15, 2004.

John Stenbit (Former CIO and Assistant Secretary of Defense for C3I) *Why Net-Centric?* October 4, 2004.

2003 – 2004

Orlando Figueroa (NASA Headquarters Science Mission Directorate) *Science and the Vision for Space Exploration*. September 17, 2004.

Griff Corpening (NASA Dryden Flight Research Center) *X-43A: The First Flight of a Scramjet Powered Airplane*. July 15, 2004.

Col. James B. Hickey (U.S. Army) *The Capture of Saddam Hussein*. June 25, 2004.

CDR Johnny R. Wolfe Jr. (U.S. Navy) *The Shuttle Columbia Accident Investigation – A Member's Perspective*. May 24, 2004.

David Dunham (JHU/APL) *Exploring the Cosmos by "Doing Something Different."* May 14, 2004.

Norman Friedman (Defense Analyst) *Where Is the Navy Likely to Go?* May 7, 2004.

Dava Sobel (Author) *Galileo in the Applied Physics Laboratory*. April 30, 2004.

- James Oberg** (Author) *China's Great Leap Upward – How Realistic Are Its Space Ambitions?* April 23, 2004.
- John T. Emmert** (George Mason Univ. and Naval Research Laboratory) *Climate Change at the Edge of the Atmosphere: Evidence of Long-Term Thinning.* April 16, 2004.
- MG Robert H. Scales Jr.** (U.S. Army Ret., Independent Consultant) *Lessons Learned From the Iraq War.* April 2, 2004.
- Maynard L. Hill** (JHU/APL Ret.) *Transatlantic Radio Controlled Model Flight.* March 26, 2004.
- Avi Rubin** (Johns Hopkins Univ.) *Security Issues in Electronic Voting.* March 19, 2004.
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- John Wack** (National Inst. of Standards and Technology) *Internet Security*. March 24, 1995.
- Adam Frederick Falk** (JHU Dept. of Physics and Astronomy) *The Beautiful Bottom Quark*. March 17, 1995.
- Col. Charles Bolden** (U.S. Naval Academy) *The Importance of Space Exploration by Humans*. March 10, 1995.
- William N. Sharpe Jr.** (JHU Dept. of Mechanical Engineering) *Tensile Testing of Small Specimens*. March 3, 1995.
- Mark O. Robbins** (JHU Dept. of Physics and Astronomy) *Molecular Mechanisms for Friction*. February 24, 1995.
- V. Daniel Hunt** (Technology Research Corp.) *Quality Management: State of the Practice*. February 17, 1995.
- Mark J. T. Smith** (Georgia Inst. of Technology) *Data Compression for Image and Video Signals*. February 10, 1995.
- Barry A. Solomon** (W. R. Grace and Co.) *Membrane-Based Hybrid Artificial Organs*. February 3, 1995.
- Steven L. Rolston** (National Inst. of Standards and Technology) *Laser-Cooled Atoms: The Coldest Thing Around*. January 27, 1995.
- Sankar Das-Sarma** (Univ. of Maryland, College Park) *Self-Organized Critical Phenomena: Non-Equilibrium Growth*. January 20, 1995.
- Maria T. Zuber** (JHU Dept. of Earth and Planetary Sciences) *Shape and Internal Structure of the Moon From the Clementine Mission*. January 13, 1995.
- Leon Cohen** (Hunter College and City Univ. of New York) *Time-Frequency-Scale Description of Signals*. January 6, 1995.
- James W. Wagner** (Johns Hopkins Univ.) *Measuring Dimensions With Light*. December 16, 1994.
- Azriel Rosenfeld** (Univ. of Maryland, College Park) *Perspectives on Computer Vision*. December 9, 1994.
- Holland C. Ford** (Johns Hopkins Univ.) *Searching for Black Holes*. December 2, 1994.

Charles S. Peskin (New York Univ. Courant Inst. of Mathematical Sciences) *Muscle and Blood: A Computer Model of the Heart*. November 18, 1994.

Andrew F. Cheng (JHU/APL) *Near Earth Asteroid Rendezvous: APL's First Planetary Mission*. November 4, 1994.

Ho Jung Paik (Univ. of Maryland, College Park) *Superconducting Gravity Gradiometers: Design and Applications*. October 28, 1994.

James S. Langer (Univ. of California, Santa Barbara) *Dynamics of Earthquakes and Fracture*. October 21, 1994.

Frederick C. Wellstood (Univ. of Maryland, College Park) *Magnetic Microscopy Using Superconducting Sensors*. October 14, 1994.

Ernest P. Gray (JHU/APL Ret.) *Reminiscence of My Association With APL Colloquia*. October 7, 1994.

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Richard B. Kershner, Ray Yuan, and Kim Richeson (JHU/APL) *Transportation Research at APL*. May 27, 1994.

David B. Weishampel (Johns Hopkins Univ.) *Under Our Feet: The Dinosaurs of the East Coast*. May 20, 1994.

Rao R. Tummala (Georgia Inst. of Technology) *Status and Challenges in Multichip Packaging*. May 13, 1994.

Donald M. Eigler (IBM Almaden Research Center) *Quantum Corrals*. May 6, 1994.

Thomas L. Carroll (Naval Research Laboratory) *Synchronizing Chaotic Circuits*. April 29, 1994.

Holland C. Ford (JHU and Space Telescope Science Inst.) *New Results From the Hubble Space Telescope*. April 22, 1994.

Lori S. Goldner (National Inst. of Standards and Technology) *Kicking and Splitting Atomic Beams With Light*. April 15, 1994.

Eugene W. Shoemaker (U.S. Geological Survey) *The Crash of Periodic Comet Shoemaker-Levy 9 on Jupiter*. April 8, 1994.

Robert W. Massof (Johns Hopkins Univ.) *Low-Vision Enhancement: Applications of Virtual Environments*. April 1, 1994.

S. Fred Singer (Univ. of Virginia and The Science and Environmental Policy Project) *Stratospheric Ozone: Politically Correct and Other Views*. March 25, 1994.

- Charles V. Meneveau** (Johns Hopkins Univ.) *Self-Similarity of Fractals and Turbulent Flows*.
March 18, 1994.
- Ivars Peterson** (Science News) *Chaos in Newton's Clock: The Historical Origins of Chaos Theory*.
March 11, 1994.
- G. R. Pasternack** (Johns Hopkins Univ.) *Tackling the Diagnostic Dilemmas of Prostate Cancer by Molecular Approaches*. March 4, 1994.
- Lawrence Washington** (Univ. of Maryland, College Park) *Fermat's Last Theorem*. February 25, 1994.
- Alan D. Sloan** (Iterated Systems Inc.) *Fractal Image Compression for Pattern Recognition*.
February 18, 1994.
- Joseph L. Katz** (Johns Hopkins Univ.) *Formation of Mixed-Oxide Powders in Flames: Processes, Products, and Industrial Applications*. February 4, 1994.
- Catherine C. Fenselau** (Univ. of Maryland, Baltimore County) *Biological Applications of Mass Spectrometry*. January 21, 1994.
- Francis P. Kuhajda** (Johns Hopkins Univ.) *New Approaches to the Diagnosis and Treatment of Breast Cancer*. January 14, 1994.
- Kenneth L. Koch** (Pennsylvania State Univ. Hershey Medical Center) *Motion Sickness: Stomach and Hormone Responses During Nausea*. January 7, 1994.
- James D. Franson** (JHU/APL) *Nonlocality in Quantum Optics: From Paradox to Practical Applications*. December 17, 1993.
- Ted W. Keller** (IBM Federated Sector Services Corp.) *Providing Quality Software for the Space Shuttle*. December 10, 1993.
- Joseph Weber** (Univ. of Maryland, College Park) *New Approaches to Neutrino Detection*.
December 3, 1993.
- William H. Murray** (Deloitte and Touche) *Security, Audit, and Control of Client-Server Computer Architectures*. November 19, 1993.
- Thomas P. Hughes** (Univ. of Pennsylvania) *Managing Polaris: An Historical Perspective*.
November 12, 1993.
- P. James Peebles** (Princeton Univ.) *Cosmology – Past, Present, and Future*. November 5, 1993.
- Carl E. Fichtel** (NASA Goddard Space Flight Center) *The Compton Gamma-Ray Observatory: New Eyes to View the Universe*. October 29, 1993.
- Albert Wattenberg** (Univ. of Illinois) *The Birth of the Nuclear Age: December 2, 1942*. October 22, 1993.

Stanford R. Ovshinsky (Energy Conversion Devices, Inc.) *The Nickel-Metal Hydride Battery for Electric Vehicles*. October 15, 1993.

C. M. Varma (AT&T Bell Laboratories) *Why High-Temperature Superconductivity Is Such an Important Problem*. October 8, 1993.

Robert W. Flower (JHU/APL) *Developing, Using, and Marketing a New Technology for Visualizing Ocular Blood Flow*. October 1, 1993.

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Klaus H. Jacob and Leonardo Seeber (Columbia Univ. Lamont-Doherty Observatory) *Earthquake Hazards in Eastern North America and the Recent Earthquake Sequence Near Columbia, Maryland*. May 28, 1993.

Donald J. Williams (JHU/APL) *The NASA Galileo Program: Mission to Jupiter*. May 21, 1993.

K. Lande (Univ. of Pennsylvania) *Present Status of Solar Neutrino Observations and Plans for New Experiments*. May 14, 1993.

Anthony F. Garito (Univ. of Pennsylvania) *The Nonlinear Optics of Organic Systems*. May 7, 1993.

Daniel R. Baum (Hughes Aircraft – Hughes Training, Inc.) *Virtual Reality: Applications, Requirements, and Promise*. April 30, 1993.

John B. Fenn (Yale Univ., 2002 Nobel Prize for Chemistry) *Electrospray Mass Spectrometry: Wings for Molecular Elephants*. April 23, 1993.

Haris N. Koutsopoulos (Massachusetts Inst. of Technology) *Intelligent Vehicle-Highway Systems*. April 16, 1993.

Joel Darmstadter (Resources for the Future) *Policy Options for Managing the Greenhouse Problem*. April 9, 1993.

Eleanor Chelimsky (Government Accounting Office) *Interactions of Social Science and Public Policy*. April 2, 1993.

Michael W. Geis (MIT Lincoln Laboratory) *Thin-Film Diamond Devices and Diamond Transistors*. March 26, 1993.

Robert K. Adair (Yale Univ.) *The Physics of Baseball*. March 19, 1993.

Arthur F. Davidsen (Johns Hopkins Univ.) *Scientific Results From the Hopkins Ultraviolet Telescope*. March 12, 1993.

John D. G. Rather (NASA Headquarters) *Asteroid and Comet Impact Hazards and Potential Mitigation Methods*. March 5, 1993.

- J. V. Badding** (Pennsylvania State Univ.) *High-Pressure Chemistry of Hydrogen in Metals*. February 26, 1993.
- John M. Logsdon** (George Washington Univ.) *The Outlook for the Space Program in the Clinton Administration*. February 19, 1993.
- Henryk Wozniakowski** (Columbia Univ.) *The Curse of Dimensionality*. February 12, 1993.
- Robert R. Birge** (Syracuse Univ.) *The Biochemistry of the Visual Process*. February 5, 1993.
- Chia-Ling Chien** (Johns Hopkins Univ.) *Giant Magneto-Transport Properties in Artificially Structured Solids*. January 29, 1993.
- C. Kumar N. Patel** (AT&T Bell Laboratories) *Photonics*. January 22, 1993.
- A. F. Karr** (Univ. of North Carolina and National Inst. of Statistical Sciences) *Buy the Number? A Probabilistic Analysis of the Maryland State Lottery*. January 15, 1993.
- William L. Ditto** (College of Wooster) *Controlling Cardiac Chaos*. January 8, 1993.
- Robert G. Greenler** (Univ. of Wisconsin, Milwaukee) *Some Atmospheric Optical Phenomena: Rainbows, Halos, and Glories*. December 18, 1992.
- Peter Riesz** (National Cancer Inst.) *Some Chemical Effects of Ultrasound*. December 11, 1992.
- Ka-Che Yip** (Univ. of Maryland, Baltimore County) *Medical Modernization in China: The Search for a Chinese Model*. December 4, 1992.
- Lawrence Hunter** (National Library of Medicine) *Mega-Classification of Protein Sequences*. November 20, 1992.
- Eugene J. Hinman, R. L. Trapp, and Lewis H. Zitzman** (JHU/APL) *The Fleet Systems Department in the New World Order*. November 13, 1992.
- J. Anthony Tyson** (AT&T Bell Laboratories) *Mapping Cosmic Dark Matter*. November 6, 1992.
- Larry B. Wolff** (Johns Hopkins Univ.) *Polarization Vision*. October 30, 1992.
- James A. Fill** (Johns Hopkins Univ.) *The Mathematics of Card Shuffling and a Self-Organizing List Scheme*. October 23, 1992.
- Ingrid Daubechies** (Rutgers Univ. and AT&T Bell Laboratories) *Wavelets – An Overview*. October 16, 1992.
- G. Richard Garritson, J. T. Stadter, John J. Wozniak, Paul J. Waltrup, and F. G. Arcella** (JHU/APL) *Aeronautics Department: From Bumblebee to the Twenty-First Century; Engineering Programs in the Aero Department; Applications of Fluid Dynamics; From COBRA to NASP – 48 Years of Ramjet Engine Development at APL; Meeting New Opportunities*. October 9, 1992.

Noel C. MacDonald (Cornell Univ.) *Nanomechanisms for Transporting Atoms, Molecules, and Other Small Objects*. October 2, 1992.

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Donald L. Eddins, John M. Watson, and Ronald L. Wilson (JHU/APL) *Strategic Systems Department – The Challenges of the Past and the Promise of the Future; The Birth of SSD (1955-1964); APL Involvement in Containing Soviet Expansionism; The 90s and Beyond*. September 11, 1992.

J. R. Austin, Christina Myles-Tochko, Mark A. Baker, Jeffrey L. Hanson, and R. J. Taylor (JHU/APL) *The Ocean Environment: Introduction; Global Ocean Characteristics; Internal Ocean Dynamics; Sound in the Ocean; Remote Sensing of the Ocean*. July 10, 1992.

D. M. Pardoll (Johns Hopkins Univ.) *Molecular Engineering of the Anti-Tumor Immune Response*. June 12, 1992.

John C. Sommerer (JHU/APL) *Confronting Chaos Theory With Experiments*. June 5, 1992.

Vitaly L. Ginzburg (Russian Academy of Sciences, Lebedev Physical Inst., 2003 Nobel Prize for Physics) *High Temperature Superconductivity*. June 1, 1992.

Albert A. Galeev (Inst. for Space Research, Russia) *Space Research in the Former Soviet Union*. May 29, 1992.

Steven Muller (Twenty-First Century Foundation) *Technology and Society in the 21st Century*. May 15, 1992.

James W. Head III (Brown Univ.) *Venus Volcanism: Recent Results From Magellan*. May 8, 1992.

S. Fred Singer (Univ. of Virginia) *Are Human Activities Affecting the Climate?* May 1, 1992.

S. Leslie Misrock (Pennie and Edmonds) *Planning for and Surviving the Patent Wars of the 1990s*. April 24, 1992.

Eric D. Young (Johns Hopkins Univ.) *Information Processing in the Auditory System*. April 17, 1992.

John Dassoulas, George C. Weiffenbach, William H. Guier, Alexander Kossiakoff, Carl O. Bostrom, Vincent L. Pisacane, and Stamatios M. Krimigis (JHU/APL) *Thirty-Five Years of Space Science at the Applied Physics Laboratory*. April 10, 1992.

George W. Wetherill (Carnegie Institution of Washington) *The Formation of the Solar System*. April 3, 1992.

C. W. Francis Everitt (Stanford Univ.) *Testing of Einstein in Space: A Marriage of Physics and Technology*. March 27, 1992.

- Murray Feshbach** (Georgetown Univ.) *Health and Environmental Crises in the Former Soviet Union*. March 20, 1992.
- Andrea Prosperetti** (Johns Hopkins Univ.) *The Sound of Bubbles*. March 13, 1992.
- Alan J. Krupnick** (Resources for the Future) *The Cost and Benefits of Smog Control*. March 6, 1992.
- Steven H. Hanke** (Johns Hopkins Univ.) *Transforming the Russian Economy*. February 28, 1992.
- Arthur F. Hebard** (AT&T Bell Laboratories) *C₆₀: From Soot to Superconductivity*. February 21, 1992.
- T. Mitchell** (North Carolina State Univ.) *A Fault-Tolerant Super Network of the U.S. Air Force's Major Operational Commands*. February 14, 1992.
- P. Meakin** (DuPont Co.) *Droplet Coalescence: Physics Applications and Aesthetics*. February 7, 1992.
- Stephen P. Maran** (NASA Goddard Space Flight Center) *What the Hubble Telescope Is Telling Us*. January 31, 1992.
- Jagdish Narayan** (National Science Foundation and North Carolina State Univ.) *Emerging Areas in Materials Research*. January 24, 1992.
- Christopher J. Burrows** (JHU Space Telescope Science Inst.) *Fixing the Hubble Space Telescope*. January 17, 1992.
- G. R. Uhl** (Johns Hopkins Univ. and National Inst. for Drug Abuse) *Structure of the Dopamine Transporter: Receptor for Cocaine and Parkinson's Disease Neurotoxins*. January 10, 1992.
- Gerald Cook** (George Mason Univ.) *Two Topics in Robotics: Kinematic Redundancy and Uncertain Environments*. January 3, 1992.
- Emil Wolf** (Univ. of Rochester) *The Redshift Controversy and Correlation-Induced Changes in Spectra*. December 13, 1991.
- Calvin F. Quate** (Stanford Univ.) *Imaging and Surface Modification With Scanning Probes: The Tunneling and Force Microscopes*. December 6, 1991.
- Peter C. Searson** (Johns Hopkins Univ.) *Light-Emitting Porous Silicon Structures*. November 22, 1991.
- Robert E. Kanigel** (Johns Hopkins Univ.) *Ramanujan: The Man Who Knew Infinity*. November 8, 1991.
- Leonard Shlain** (Author) *Art and Physics: Parallel Visions in Space, Time, and Light*. November 1, 1991.

Fereydoon F. Family (Emory Univ.) *Dynamics of Fractal Surfaces*. October 25, 1991.

Praveen Chaudhari (IBM T. J. Watson Research Center) *Critical Current, Grain Boundaries, and SQUIDS in the High Temperature Superconductors*. October 18, 1991.

Alexander J. Dessler (Rice Univ.) *The Dirigible and the Space Shuttle: An Historic Analogy*. October 11, 1991.

Quentin E. Dolecek (JHU/APL) *Scientific Visualization With Personal Computers*. October 4, 1991.

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W. H. Munk (Scripps Inst. of Oceanography) *Global Acoustics*. September 27, 1991.

Eliot A. Cohen (JHU School of Advanced International Studies) *American Strategy After Desert Storm*. June 7, 1991.

Timothy A. Fischell (Stanford Univ.) *Advances in the Treatment and Understanding of Coronary Artery Disease*. May 24, 1991.

Marc A. Kastner (Massachusetts Inst. of Technology) *The Single Electron Transistor*. May 17, 1991.

Thomas C. Schelling (Univ. of Maryland, 2005 Nobel Prize for Economics) *Meeting the Greenhouse Challenge*. May 10, 1991.

Phillip G. Nelson (National Institutes of Health) *Electrical Activity and Development of the Nervous System*. April 26, 1991.

Roald Z. Sagdeev (Univ. of Maryland) *Crisis of the Soviet Space Science Program*. April 19, 1991.

Katherine J. Strandburg (Northwestern Univ. and Argonne National Laboratory) *Phase Transitions in Limited-Connectivity Neural Networks*. April 12, 1991.

Richard E. Smalley (Rice Univ., 1996 Nobel Prize for Chemistry) *C₆₀: Chapter Two*. March 29, 1991.

Robert Costanza (Univ. of Maryland Chesapeake Biological Laboratory) *Ecological Economics*. March 22, 1991.

Samuel T. Durrance and Arthur F. Davidsen (JHU Center for Astrophysical Sciences) *The Hopkins Ultraviolet Telescope: An Odyssey in Space and Time*. March 19, 1991.

Mark A. Reed (Yale Univ.) *Quantum Semiconductor Nanostructures: Physics and Applications*. March 8, 1991.

Donald L. Price (Johns Hopkins Univ.) *The Neurobiology of Alzheimer's Disease and Animal Models: Mechanisms of Disease and Prospects for Therapy*. March 1, 1991.

- Horst L. Stormer** (AT&T Bell Laboratories, 1998 Nobel Prize for Physics) *Optics With Two-Dimensional Electrons*. February 22, 1991.
- Ronald E. Gots** (National Medical Advisory Service) *Toxins and Health: Science vs. Perception*. February 15, 1991.
- Michael E. Prise** (AT&T Bell Laboratories) *Optical Computation Using SEEDs (Self-Electro-Optic Effect Devices)*. February 8, 1991.
- Jerry R. Williams** (Johns Hopkins Univ.) *Treatment of Cancer With Radiolabeled Antibodies*. February 1, 1991.
- Moise H. Goldstein** (Johns Hopkins Univ.) *Speech Processing by Real and Silicon Ears*. January 25, 1991.
- Dwight L. Jaggard** (Univ. of Pennsylvania) *Fractal Electrodynamics*. January 18, 1991.
- Ralph R. Weichselbaum** (Univ. of Chicago) *Molecular Mechanisms for Radiation Metabolism in Tumor Cells*. January 4, 1991.
- Carl E. Wieman** (JILA and Univ. of Colorado, 2001 Nobel Prize for Physics) *Developments in Laser Trapping and Cooling*. December 14, 1990.
- Wayne M. Itano** (National Inst. of Standards and Technology) *The Quantum Zeno Effect*. December 7, 1990.
- Guy M. McKhann** (Johns Hopkins Univ.) *Approaches to the Neurobiology of Language*. November 30, 1990.
- Raymond G. Roble** (National Center for Atmospheric Research) *Modeling the General Circulation of the Thermosphere/Ionosphere and the Response to Solar Variability*. November 16, 1990.
- Bassam Z. Shakhashiri** (Univ. of Wisconsin) *Communicating Science*. November 9, 1990.
- Gerald M. Masson** (Johns Hopkins Univ.) *Software Fault Tolerance Using Certification Trails*. November 2, 1990.
- Ronald M. Atlas** (Univ. of Louisville) *Bioremediation of Oil Spills*. October 26, 1990.
- Edwin L. Turner** (Princeton Univ.) *Gravitational Lensing and Cosmology*. October 19, 1990.
- James A. Yorke** (Univ. of Maryland) *Chaos and Fractals in the Forced Damped Pendulum*. October 12, 1990.
- Kevin E. Trenberth** (National Center for Atmospheric Research) *Global Warming and Recent Climate Change: Observation and Modeling*. October 5, 1990.
- 1989 – 1990**
- Edmond C. Roelof** (JHU/APL) *Global Imaging of Planetary Magnetospheres*. September 28, 1990.

- Paul H. Nitze** (JHU School of Advanced International Studies) *From Hiroshima to Glasnost: Reflections on Four Perilous Decades.* June 15, 1990.
- Michael W. Roth** (JHU/APL) *Neural Networks, Machine Vision, and Automatic Target Recognition.* June 1, 1990.
- Joseph Zyss** (Centre National d'Études des Télécommunications) *Symmetry, Chemistry, and Optics: Approach to Molecular Engineering in Nonlinear Optics.* May 18, 1990.
- Donald J. Kessler** (NASA Johnson Space Center) *Orbital Debris: Implications for Spacecraft Operations.* May 11, 1990.
- Salvatore R. DiNardi** (Univ. of Massachusetts, Amherst) *Indoor Air Quality.* May 4, 1990.
- Alexander Szalay** (Johns Hopkins Univ.) *Correlations of Galaxies on a Cosmic Scale.* April 27, 1990.
- Daniel J. Kleitman** (Massachusetts Inst. of Technology) *Computational Complexity and Economics.* April 20, 1990.
- Reinhold C. Mann** (Oak Ridge National Laboratory) *Mobile Robotics for Nuclear-Energy-Related Applications.* April 13, 1990.
- Anthony R. Eastham** (Queen's Univ., Canada) *Magnetically Levitated Trains.* April 6, 1990.
- Thomas S. Mang** (Roswell Park Memorial Inst.) *Clinical Treatment of Various Cancer Types by Means of Photodynamic Therapy.* March 30, 1990.
- Alfred Y. Wong** (Univ. of California, Los Angeles) *Active Global Experiments for Preserving the Ozone Layer.* March 23, 1990.
- D. F. Strobel** (Johns Hopkins Univ.) *The Atmospheres of the Outer Planets and Their Satellites.* March 16, 1990.
- A. Refik Kortan** (AT&T Bell Laboratories) *Scanning Tunneling Microscope Observations of Nonperiodic Crystals.* March 9, 1990.
- Edward C. Stone** (California Inst. of Technology) *The Voyager Encounter With Neptune.* March 1, 1990.
- Nancy W. Boggess** (NASA Goddard Space Flight Center) *The Initial Cosmic Background Explorer (COBE) Results.* February 23, 1990.
- Joseph J. Tribbia** (National Center for Atmospheric Research) *Modern Weather Prediction.* February 16, 1990.
- Zlatko Tesanovic** (Johns Hopkins Univ.) *Superconductivity in a Very High Magnetic Field.* February 9, 1990.

Roderick V. Jensen (Yale Univ.) *Chaos in Classical and Quantum Systems: From Atoms to Asteroids.* February 2, 1990.

Samuel A. Werner (Univ. of Missouri, Columbia) *The Aharonov-Bohm Effect With Neutrons.* January 26, 1990.

Peter L. Olson (Johns Hopkins Univ.) *The Structure of Convection in the Earth's Mantle.* January 19, 1990.

Walter J. Doherty (IBM T. J. Watson Research Laboratories) *Computing Directions for the 1990s.* January 12, 1990.

Henry A. Kues (JHU/APL) *Effects of RF Radiation on the Primate Eye.* January 5, 1990.

Theodore B. Taylor (Independent Consultant) *Nuclear Disarmament: How Far Shall We Go?* December 15, 1989.

Bruce A. Barnett (Johns Hopkins Univ.) *New Results From the Stanford Linear Collider Z^0 Experiment: A Limit on the Number of Neutrino Types.* December 1, 1989.

Allan R. Robinson (Harvard Univ.) *Progress in Geophysical Fluid Dynamics.* November 17, 1989.

Barbara G. Levi (Physics Today) *Land Based Missiles: The Basis for Decision.* November 10, 1989.

Bruno W. Augenstein (RAND Corp.) *Antiproton Science and Technology.* November 3, 1989.

Martin O. Harwit (National Air and Space Museum) *Astronomical Discovery and Astrophysical Understanding.* October 27, 1989.

Richard J. Samuels (MIT Japan Program) *Getting America Ready for Japanese Science and Technology.* October 20, 1989.

K. K. Bajaj (Arizona State Univ.) *Quantum Well Opto-Electronics.* October 13, 1989.

Robert C. Dynes (AT&T Bell Laboratories) *Vortex States in Superconductors: Microscopics and Macroscopics.* October 6, 1989.

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John R. Apel (JHU/APL) *Internal Waves in a Norwegian Fjord: 'Dead Water' Revisited.* September 29, 1989.

Farouk El-Baz (Boston Univ.) *In Search of Pharaoh's Boat.* May 26, 1989.

James J. Griffin (Univ. of Maryland) *Quadronium – Rosetta Stone for the Electron-Positron Puzzle.* May 19, 1989.

Frank Whittle (Royal Air Force Ret.) *ISOABE Award Address: The Invention and Development of the Gas Turbine Engine.* May 12, 1989.

- David Emin** (Sandia National Laboratories) *Large Bipolarons and High-Temperature Superconductivity*. May 5, 1989.
- Raul Fainchtein** (JHU/APL) *Scanning Tunneling Microscopy and Spectroscopy at APL*. April 28, 1989.
- Thomas H. Stix** (Princeton Univ.) *Atmospheric Processing*. April 14, 1989.
- Paul S. Miller** (Johns Hopkins Univ.) *Potential Therapeutic Applications for Anti-Sense Nucleic Acid Analogs*. April 7, 1989.
- Alexander J. Dessler** (Rice Univ.) *Status of the Small-Comet Hypothesis*. March 31, 1989.
- Julian H. Krolik** (Johns Hopkins Univ.) *Problems in the Formation of the Cosmic Microwave Background*. March 24, 1989.
- John Sheffield** (Oak Ridge National Laboratory) *Fusion Energy*. March 17, 1989.
- Paul D. Lett** (National Inst. of Standards and Technology) *Laser Cooling of Atoms to Microkelvin Temperatures*. March 10, 1989.
- Roger A. Morse** (Cornell Univ.) *The Africanized Honeybee*. March 3, 1989.
- Eugene N. Parker** (Univ. of Chicago) *Do We Really Understand Our Nearest Star – The Sun?* February 24, 1989.
- Arthur W. Sleight** (DuPont Co. and Univ. of California, Santa Barbara) *The Chemist's View of High Temperature Superconductivity*. February 17, 1989.
- Steven H. Hanke** (Johns Hopkins Univ.) *Privatization: Public Versus Private Costs*. February 10, 1989.
- Rafael De La Llave** (Princeton Univ.) *Computer Assisted Proofs in Mathematical Physics*. February 3, 1989.
- Jordan A. Goodman** (Univ. of Maryland) *The Anomalous Muon Content of Air Showers From Hercules X-1*. January 27, 1989.
- Masayoshi Masuda** (Research Association of Superconducting Magnetic Storage, Japan) *Recent Topics on Energy Storage Using Superconductivity*. January 20, 1989.
- Paul D. Garnett** (Syscon Corp.) *Computer Viruses*. January 13, 1989.
- O. W. Greenberg** (Univ. of Maryland) *How Well Is the Pauli Exclusion Principle Obeyed?* January 6, 1989.
- Kishin Moorjani** (JHU/APL) *Superconducting Technology: A Look at Japan*. December 16, 1988.

Per-Anders Persson (New Mexico Inst. of Mining and Technology) *New Developments in Explosives Technology*. December 9, 1988.

Richard S. Muller (Univ. of California, Berkeley) *New Opportunities With Microdynamic Systems*. December 2, 1988.

Celso Grebogi (Univ. of Maryland) *Chaos and Fractals in NonLinear Dynamics*. November 18, 1988.

Henry F. Gray (Naval Research Laboratory) *Field Emitter Arrays: A Basis for Vacuum Microelectronics*. November 11, 1988.

Abner Shimony (Boston Univ.) *Hidden Variables and Bell's Theorem: Theory and Experiment*. November 4, 1988.

Alexander E. Kaplan (Johns Hopkins Univ.) *Nonlinear and Quantum Optics of a Single Electron*. October 28, 1988.

John N. Bahcall (Inst. for Advance Study) *Solar Neutrinos*. October 21, 1988.

Harry K. Charles Jr. (JHU/APL) *Electronic Packaging*. October 14, 1988.

David A. Savitz (Univ. of North Carolina) *Childhood Cancer and Exposure to 60-Hz Magnetic Fields From Power Lines*. October 7, 1988.

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Benjamin F. Chao (NASA Goddard Space Flight Center) *Earthquake Effects on the Earth's Rotation*. May 27, 1988.

Charles C. Kilgus (JHU/APL) *Three Years of Geosat Results*. May 20, 1988.

Harold A. McAlister (Georgia State Univ.) *Optical High-Resolution Astronomy*. May 13, 1988.

Max Dresden (SUNY Stony Brook) *Courage and Success in Science: Episodes in the Life of H. A. Kramers*. May 6, 1988.

Michael F. Schlesinger (Office of Naval Research) *History of Probability*. April 29, 1988.

Douglas G. Mose (George Mason Univ.) *Indoor Radon Problem Areas in Maryland and Virginia*. April 22, 1988.

Allan R. Sandage (Johns Hopkins Univ. and California Inst. of Technology) *Did the World Begin?* April 15, 1988.

David Emin (Sandia National Laboratories) *Icosahedral Boron-Rich Solids as Very High Temperature Semiconductors*. April 8, 1988.

Howard Simons (Harvard Univ.) *Reporting Science*. April 1, 1988.

- Robert P. Kirshner** (Harvard Univ.) *The Supernova of a Lifetime*. March 25, 1988.
- G. L. Kane** (Univ. of Michigan) *Why Physics Needs the Superconducting Super-Collider*. March 18, 1988.
- Mark R. Schoeberl** (NASA Goddard Space Flight Center) *An Overview of the Antarctic Ozone Depletion*. March 11, 1988.
- Gerald M. Rosen and Gregory B. Bulkley** (Johns Hopkins Univ.) *The Detection of Free Radicals in Biological Systems: Implications in Human Disease*. March 4, 1988.
- Rustum Roy** (Pennsylvania State Univ.) *Materials by Design: Diamond Films, Nanocomposites, and Zero-Expansion Ceramics*. February 26, 1988.
- Stephen Tolchin** (Pyramid Technology) *Networking, Computing, and Differentiation*. February 19, 1988.
- Jeffrey Greenhut** (U.S. Department of the Army) *History, Weather, and War*. February 12, 1988.
- Owen P. Bricker** (U.S. Geological Survey) *Acid Rain: History and Current Research*. February 5, 1988.
- Myron L. Weisfeldt** (Johns Hopkins Univ.) *Current Strategies in the Treatment of Heart Attacks*. January 29, 1988.
- Frank Brody and John Sokich** (National Meteorological Center) *Heavy Snow Forecasting*. January 22, 1988.
- Jene A. Golovchenko** (Harvard Univ.) *A Look at the World Through the Tunneling Electron Microscope*. January 15, 1988.
- Brian P. Flannery** (Exxon Research and Engineering) *Three-Dimensional X-Ray Microtomography*. December 18, 1987.
- Richard T. Greene** (Cognitive Technologies Associates) *Japanese Techniques in Artificial Intelligence, Education, and Research Administration and the Competitiveness Problem*. December 11, 1987.
- Thomas F. Zuck** (Univ. of Cincinnati) *New Strategies for Detecting the AIDS Virus*. December 4, 1987.
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John A. O’Keefe (NASA Goddard Space Flight Center) *The Riddle of Tektites*. January 4, 1980.

Kenneth M. Case (Rockefeller Univ.) *Solitons: Their Origin and Behavior*. December 14, 1979.

Ernest A. Stern (Univ. of Washington) *Structure Determination by X-Ray Absorption (EXAFS)*. December 7, 1979.

James A. Yorke (Univ. of Maryland) *Chaotic Dynamics*. November 30, 1979.

Dorothy Nelkin (Cornell Univ.) *Science as a Source of Political Conflict*. November 16, 1979.

K. L. Chopra (Indian Inst. of Technology and Cornell Univ.) *Thin-Film Solar Cells: CdS-Cu₂S Heterojunctions*. November 9, 1979.

Bernard J. Carr (Cambridge Univ.) *The Anthropic Principle and the Structure of the Physical World: Does the Existence of Life Determine the Physical Constants?* November 2, 1979.

Richard B. Frankel (Frances Bitter National Magnet Laboratory) *A Navigational Compass in Magnetic Bacteria*. October 26, 1979.

Norman C. Rasmussen (Massachusetts Inst. of Technology) *What Does the 1975 Reactor Safety Study Predict Concerning the Accident at Three Mile Island?* October 19, 1979.

Raymond C. Shreckengost (Central Intelligence Agency) *An Overview of System Dynamics and Some Applications*. October 12, 1979.

Gordon L. Dugger (JHU/APL) *Ocean Thermal Energy Conversion*. October 5, 1979.

1978 – 1979

Edmund Skellings (Florida International Univ.) *A Vision of Information*. September 12, 1979.

- Bradford A. Smith** (Univ. of Arizona) *Rendezvous With a Giant: The Jupiter System as Seen by Voyager Cameras.* June 15, 1979.
- Reuven Leopold** (Pratt and Whitney) *Future Technology Alternatives in Warship Design.* June 1, 1979.
- Aaron Wildavsky** (Inst. for Policy and Management) *No Risk Is the Highest Risk of All.* May 25, 1979.
- Stamatios M. Krimigis** (JHU/APL) *The Magnetosphere of Jupiter – A View From Voyager I.* May 18, 1979.
- Donald A. Henderson** (Centers for Disease Control) *Problems of Immunization in the Developing World.* May 11, 1979.
- Paul S. Sarbanes** (U.S. Senate) *Current Trends in Congress.* May 4, 1979.
- Alvin M. Weinberg** (Inst. for Energy Analysis) *Reflections on the Energy Wars.* May 4, 1979.
- Jacques R. Maroni** (Ford Motor Company) *Alternative Fuels for Transportation – Economic and Technical Factors.* April 27, 1979.
- Max Dresden** (State Univ. of New York) *Thermodynamics of Black Holes.* April 20, 1979.
- Banesh Hoffman** (Queen's College) *Albert Einstein: The Scientist and the Man.* April 13, 1979.
- John R. Apel** (NOAA Pacific Marine Environmental Lab) *Scientific Results From SEASAT.* April 6, 1979.
- Gareth M. Green** (Johns Hopkins Univ.) *Science and Technology in Environmental Medicine.* March 30, 1979.
- Dennis J. Stanford** (Smithsonian) *Evidence for the Earliest Man in North America.* March 23, 1979.
- Ilya Prigogine** (Univ. of Texas, Univ. of Brussels, and 1977 Nobel Prize for Chemistry) *From Determinism to Probability.* March 16, 1979.
- H. T. Kung** (Carnegie-Mellon Univ.) *Some Recent Advances in Computer Algorithms.* March 9, 1979.
- Alphonse Chapanis** (Johns Hopkins Univ.) *Interactive Communication – Some Findings From Laboratory Studies.* March 2, 1979.
- Channing L. Ewing** (Naval Aerospace Medical Research) *Human Response to Inertial Forces.* February 23, 1979.
- Sergei Kitaigorodskii** (Johns Hopkins Univ.) *Some Aspects of the Wind Wave Spectrum.* February 16, 1979.

Paul B. MacCready (Aerovironment) *Man Powered Flight: The Gossamer Condor*. February 9, 1979.

Richard S. Alben (GE Research Lab) *Photovoltaic Electricity From Concentrated Sunlight*. February 2, 1979.

Lester Machta (NOAA Air Resources Laboratory) *The Carbon Dioxide Problem*. January 26, 1979.

Herbert Friedman (Naval Research Laboratory) *Neutron Stars, Black Holes, and the Shape of the Universe*. January 19, 1979.

Martin A. Tolcott (Office of Naval Research) *Decision Aids for Command and Control*. January 12, 1979.

Cody Pfanstiehl (Metro) *Update on Metro – The Public Transportation Revolution*. January 5, 1979.

W. Ross Adey (VA Loma Linda Hospital) *Brain Tissue Interactions With Weak Electromagnetic Fields*. December 8, 1978.

J. Imbrie (Brown Univ.) *Orbital Theory of the Ice Ages*. December 1, 1978.

Noel Vietmyer (National Academy of the Sciences) *Exploiting Unconventional Plants as Resources in the 1980s*. November 10, 1978.

Paul C. Lauterbur (SUNY Stony Brook, 2003 Nobel Prize for Physiology or Medicine) *Nuclear Magnetic Resonance Zeugmatographic Imaging: Applications in Medicine*. November 3, 1978.

W. J. Spencer (Sandia Laboratories) *An Electronic Pancreas for Diabetics*. October 27, 1978.

J. H. Simmons (Catholic Univ. of America) *Fixation of Radioactive Waste in High-Silica Glass*. October 20, 1978.

J. A. Krumhansl (National Science Foundation) *The Evaluation of Applied Theoretical Concepts for Nondestructive Evaluation*. October 13, 1978.

L Gleason (Marine Hydroelectric Development Corp.) *Opportunities and Problems of Hydroelectric Development at Existing Dams*. October 6, 1978.

1977 – 1978

T. A. Potemra (JHU/APL) *The Aurora Polaris: The Greatest Light Show on Earth*. September 29, 1978.

Birute Galdikas-Brindamour (L. S. B. Leakey Foundation) *Orangutans and Hominid Evolution*. June 16, 1978.

Stanley Corrsin (Johns Hopkins Univ.) *The Soaring Flight of Birds*. June 2, 1978.

- R. E. Green** (Johns Hopkins Univ.) *Some Innovative Techniques in Nondestructive Testing*. May 26, 1978.
- L. Donley** (Lamu Museum, Kenya) *The Role of a Museum in a Developing Country*. May 19, 1978.
- J. Winger** (Chase Manhattan Bank) *The Financial Realities of an Adequate Energy Supply*. May 12, 1978.
- W. R. Powell** (JHU/APL) *Capturing the Sun's Heat for Future Use*. May 5, 1978.
- P. R. McHugh** (Johns Hopkins Univ.) *The Control of the Ingestion of Calories in Feeding Behavior*. April 28, 1978.
- F. A. Long** (Cornell Univ.) *A Set of Questions on U.S. Military R&D: For What and How Much?* April 21, 1978.
- C. R. Johnson** (Univ. of Maryland) *The Impossibility of Group Decisions*. April 14, 1978.
- R. Ramaty** (NASA Goddard Space Flight Center) *Gamma Ray Lines in Astrophysics*. April 7, 1978.
- P. Achinstein** (Johns Hopkins Univ.) *Some Paradoxes of Confirmation in Science*. March 31, 1978.
- J. W. Kendrick** (George Washington Univ.) *Relationships Between R&D and Productivity/Economic Growth*. March 24, 1978.
- Sam Koslov** (Office of Assistant Secretary of the Navy) *Electromagnetic Radiation: Its Impact on Biology and on Technical Operations*. March 17, 1978.
- V. Brannigan** (Univ. of Maryland) *Converting Scientific Fact Into Legal Evidence*. March 10, 1978.
- B. M. Zuckerman** (Univ. of Maryland) *The Search for Extraterrestrial Intelligence*. March 3, 1978.
- R. M. Hamilton** (U.S. Geological Survey) *Earthquake Prediction*. February 24, 1978.
- Robert R. Newton** (JHU/APL) *The Crime of Claudius Ptolemy*. February 17, 1978.
- W. M. Brown** (Hudson Inst.) *Optimal Energy Paths*. February 10, 1978.
- Ronald L. Rivest** (Massachusetts Inst. of Technology) *A New Encryption Method*. February 3, 1978.
- Victor L. Granatstein** (Naval Research Laboratory) *Ultrahigh Power Microwave Pulses From Intense Relativistic Electron Beams*. January 27, 1978.
- Edward R. Harrison** (Univ. of Massachusetts) *Has the Sun a Companion Star?* January 6, 1978.
- Jogish Pati** (Univ. of Maryland) *Basic Left-Right Symmetry in Nature: Its Implication for Atomic Parity and Electron-Positron Colliding Experiments*. December 16, 1977.

Bruce Smith and Joseph Karlesky (Columbia Univ. and Franklin and Marshall College) *The State of Academic Science*. December 9, 1977.

Norman Augustine (Martin Marietta Corporation) *Projecting Future Defense Capabilities*. December 2, 1977.

Bennett Miller (U.S. Dept. of Energy) *The Role of Inexhaustible Energy Resources in Solving the Energy Crisis*. November 18, 1977.

Sidney M. Mintz (Johns Hopkins Univ.) *Sugar, Culture, and Power – An Anthropological View*. November 11, 1977.

David Adler (Massachusetts Inst. of Technology) *Amorphous Semiconductors*. November 4, 1977.

Maurice M. Shapiro (Harvard Univ.) *Hunting for Neutrinos Deep Under the Ocean*. October 28, 1977.

Helmut E. Landsberg (Univ. of Maryland) *Fluctuations of the Earth's Climate*. October 21, 1977.

Heinz Gerischer (Fritz Haber Institut) *Semiconductor Electrodes in the Electrochemical Conversion of Solar Energy*. October 14, 1977.

Kishin Moorjani (JHU/APL) *Disordered Magnetism*. October 7, 1977.

1976 – 1977

Mark Goldberger (Maryland Dept. of Health and Mental Hygiene) *Tracking Down Legionnaires' Disease*. May 27, 1977.

James Weiss (Johns Hopkins Univ.) *Some New Uses of Ultrasound in Cardiology*. May 20, 1977.

J. Imbrie (Brown Univ.) *Orbital Theory of the Ice Ages*. May 13, 1977.

James R. Heirtzler (Woods Hole Oceanographic Inst.) *Exploration of Mid-Ocean Ridges by Submersibles*. May 6, 1977.

John R. Carruthers (Bell Telephone Laboratories) *Optical Fiber Guides for Lightwave Communication*. April 29, 1977.

Vernon B. Mountcastle (Johns Hopkins Univ.) *Brain Mechanisms for Visual Attention*. April 15, 1977.

Farah Usmani (United Nations Environmental Program) *Energy Options for Developing Countries*. April 8, 1977.

I. B. C. Matheson (Univ. of Georgia) *The Role of Active Oxygen in Biological Oxidations*. April 1, 1977.

Alex Dragt (Univ. of Maryland) *Chaos Starting From $F = ma$* . March 25, 1977.

- E. G. D. Cohen** (Rockefeller Univ.) *The Quest for the Absolute Zero of Temperature*. March 18, 1977.
- Colin Crook** (Motorola Semiconductor Products) *Future Microcomputers and Technologies: A Perspective*. March 11, 1977.
- Roberto Poljak** (Johns Hopkins Univ.) *Structure and Function of Immunoglobulins*. March 4, 1977.
- R. M. May** (Princeton Univ.) *Simple Ecological Models With Very Complicated Dynamics*. February 25, 1977.
- Abel Wolman** (Johns Hopkins Univ.) *Solid Waste Disposal*. February 18, 1977.
- Eric Baer** (Case Western Reserve Univ.) *Tendon Structure and Aging*. February 11, 1977.
- Robert Zwanzig** (Univ. of Maryland) *Molecular Motion in Liquids*. February 4, 1977.
- John D. Morgan** (U.S. Bureau of Mines) *The U.S. Mineral Position*. January 28, 1977.
- Otto Scherer** (Hydronautics Incorporated) *An Overview of Sailing Yacht Propulsion*. January 21, 1977.
- Joseph Sucher** (Univ. of Maryland) *What Is the World Made Of?* January 14, 1977.
- William Levendahl** (Naval Ship Research and Development Center) *Superconductive Naval Propulsion Systems*. January 7, 1977.
- Edward Blum** (Energy Research and Development Agency) *Catastrophy Theory and Some Potential Applications*. December 17, 1976.
- P. A. Hanle** (National Air and Space Museum) *The Coming of Age of Erwin Schroedinger: His Quantum Statistics of Ideal Gases*. December 10, 1976.
- J. M. D. Coey** (Univ. of Grenoble) *Novel Magnetic Structures in Amorphous Solids*. December 3, 1976.
- Maxine Singer** (National Institutes of Health) *The Scientific and Social Issues Raised by Recombinant DNA Research*. November 12, 1976.
- Harry L. Swinney** (City Univ. of New York) *Transition to Turbulence in a Rotating Fluid*. November 5, 1976.
- Douglas Davis** (Georgia Inst. of Technology) *Atmospheric Measurements of Trace Gases via Aircraft*. October 29, 1976.
- Jordan Lewis** (National Bureau of Standards) *Technology, Economics, and Public Policy*. October 22, 1976.
- Robert Long** (Johns Hopkins Univ.) *Circulations and Salt Distributions in Estuaries*. October 15, 1976.

J. G. Mavroides (Lincoln Laboratory) *Photoelectrolysis of Water*. October 8, 1976.

Robert E. Fischell (JHU/APL) *Pain Relief by Electrostimulation*. October 1, 1976.

1975 – 1976

R. E. Gibson (JHU/APL) *Reflections on the Origin and Development of APL*. June 4, 1976.

C. W. Misner (Univ. of Maryland) *Black Holes and Spacetime Curvatures*. May 14, 1976.

Leon Madansky (Johns Hopkins Univ.) *New Particles*. May 7, 1976.

Paul Leventhal (Senate Government Operations Committee) *Nuclear Proliferation*. April 30, 1976.

David Harrje (Princeton Univ.) *Energy Conservation in the Home*. April 23, 1976.

John Cooney (Drexel Univ.) *Applications of Raman Scattering to Remote Sensing*. April 16, 1976.

Paul Bosco (Georgetown Univ.) *Linguistic Models in Second Language Instruction*. April 9, 1976.

J. H. Olsen (Flow Research Inc.) *Cutting With High Speed Water Jets*. April 2, 1976.

Walter G. Berl (JHU/APL) *Research on Fire Related Problems*. March 26, 1976.

S. Fred Singer (Univ. of Virginia) *SSTs, Ozone, and Skin Cancer*. March 19, 1976.

Ruth Patrick (Academy of Natural Sciences) *Ecological Effects of Various Energy Sources*. March 12, 1976.

Theodore Tamir (Polytechnic Inst. of New York) *Beam and Waveguide Couplers*. March 5, 1976.

Donald W. Simborg (Johns Hopkins Univ.) *Patient Information Systems – The Johns Hopkins Experience*. February 27, 1976.

Alan Fowler (IBM Watson Research Center) *Inversion Layers on Silicon Surfaces*. February 13, 1976.

Allan R. Hoffman (Senate Committee for Commerce) *A Scientist Joins the Congressional Staff*. February 6, 1976.

Arthur Squires (City Univ. of New York) *Coal – A Past and Future King*. January 30, 1976.

Paul Handler (Univ. of Illinois) *Computer Predictions of Energy Atmospheric Effects*. January 23, 1976.

Howard A. Glickstein (Howard Univ.) *Title VII – Ten Years Later*. January 16, 1976.

Robert Park (Univ. of Maryland) *Low Energy Electrons as a Probe of a Solid Surface*. January 9, 1976.

Shyke A. Goldstein (Univ. of Maryland and Naval Research Laboratory) *Intense Electron and Ion Beams*. December 18, 1975.

Arthur E. Hess (Consultant, Social Security Administration) *Social Security – Past, Present, and Future*. December 12, 1975.

E. Bright Wilson (Harvard Univ.) *Coping With the Secondary Consequences of New Technology*. November 21, 1975.

Michael Beer (Johns Hopkins Univ.) *Studies of Macromolecular Structure With the Scanning Electron Microscope*. November 7, 1975.

George Clark (MIT Center for Space Research) *X-Rays From Gravitationally Collapsed Bodies Observed by SAS-C*. October 31, 1975.

Virginia L. Trimble (Univ. of Maryland, College Park) *Cosmology – Man’s Place in the Universe*. October 24, 1975.

Oswald Roels (Columbia Univ.) *Artificial Upwelling: Power, Fresh Water, and Food From Deep Water and Sunshine*. October 17, 1975.

M. C. Waddell (JHU/APL) *Vehicle Management in Automatic Rapid Transit*. October 10, 1975.

George M. Temmer (Rutgers Univ.) *What We Can Learn About Very Short Time Intervals ($\sim 1e-18$ S) by the Crystal Blocking Technique*. October 3, 1975.

1974 – 1975

Helen Hopfield (JHU/APL) *Tropospheric Effects on Satellite Range Measurements*. May 23, 1975.

Alfred J. Cote (JHU/APL) *Harbor Traffic Safety*. May 16, 1975.

Steven M. Stanley (Johns Hopkins Univ.) *The Pattern and Process of Large-Scale Evolution*. May 9, 1975.

Eugenie Clark (Univ. of Maryland) *Mexican “Sleeping” Sharks*. April 25, 1975.

Bernd T. Matthias (Univ. of California, San Diego) *Different Approaches to High Temperature Superconductivity*. April 18, 1975.

Paul E. Garber (Smithsonian Institution) *Kites and Boomerangs*. April 4, 1975.

Irwin Schneider (Naval Research Laboratory) *Holography Using Anisotropic Centers in Alkali Halides*. March 28, 1975.

Roy R. Johnson (KMS Fusion Inc) *Laser Driven Compression Experiments and Their Implication for Laser Pellet Fusion*. March 21, 1975.

Hong-Yee Chiu (Goddard Inst. for Space Studies) *Problems of Intense Magnetic Fields in Astrophysics*. March 14, 1975.

- Earl Callen** (American Univ.) *Phase Transitions in Social Systems*. March 7, 1975.
- Gerald K. O'Neill** (Princeton Univ.) *The Colonization of Space*. February 21, 1975.
- Wernher Von Braun** (Fairchild Industries) *Communications Satellites – Space Science Turns to the Needs of Man*. February 14, 1975.
- C. F. Christ** (Johns Hopkins Univ.) *How to Create or Control Inflation*. February 7, 1975.
- Verner Suomi** (Univ. of Wisconsin) *Mariner 10 Encounters Venus and Mercury*. January 31, 1975.
- Kenneth E. Iverson** (IBM) *APL for APL*. January 17, 1975.
- Frank Wallach** (United Automobile Workers of America) *Occupational Health and Safety*. January 10, 1975.
- N. C. Rasmussen** (Massachusetts Inst. of Technology) *Nuclear Reactor Safety*. January 3, 1975.
- H. E. Stanley** (Massachusetts Inst. of Technology) *How Does an Ion Get Through a Membrane?* December 20, 1974.
- H. B. Callen** (Univ. of Pennsylvania) *The Physics of Magnetic Bubbles*. December 13, 1974.
- D. Bryceson** (Univ. of Oxford) *Research on National Parks and the Serengeti*. December 6, 1974.
- M. Harvey Brenner** (Johns Hopkins Univ.) *Special Problems Associated With National Economic Instability*. November 22, 1974.
- Merrill Hessel** (National Bureau of Standards) *Heat Pipe Ovens and Applications to High Energy Lasers*. November 15, 1974.
- B. R. Stokes** (American Public Transit Association) *Some Problems With Mass Transit*. November 8, 1974.
- K. W. Boer** (Univ. of Delaware) *Results From the Experimental Solar House (Solar I)*. October 31, 1974.
- J. F. Stocky** (Jet Propulsion Laboratory) *Reducing Automobile Emission Through Enrichment of Gasoline*. October 18, 1974.
- C. A. Ponnampereuma** (Univ. of Maryland) *A Chemical Origin of Life*. October 11, 1974.
- Gabor Domokos** (Johns Hopkins Univ.) *Resonances, Partons, and Scaling: A Theorist Reviews Some Recent Experiments*. October 4, 1974.

1973 – 1974

- A. W. Trivelpiece** (U.S. Atomic Energy Commission) *Progress Toward Controlled Thermonuclear Fusion*. June 21, 1974.

- Frank Satkiewicz** (JHU/APL) *Mass Spectrometry of Solids*. May 31, 1974.
- Robert S. Ledley** (Georgetown Univ. Medical Center) *A Computer Assisted Tomographic X-Ray Scanner*. May 10, 1974.
- R. N. Silver** (Los Alamos Scientific Laboratories) *Electron Hole Condensation in Semiconductors*. May 3, 1974.
- Harold Masursky** (U.S. Geological Survey) *Exploration of Mars*. April 26, 1974.
- Nicolaas G. van Kampen** (Univ. of Utrecht) *Nonlinear Transfer Equations*. April 19, 1974.
- Amar Bose** (Massachusetts Inst. of Technology) *Recording and Reproduction of Music*. April 12, 1974.
- Theodore B. Taylor** (International Research and Development Corporation) *Nuclear Theft – Risks and Safeguards*. March 29, 1974.
- Roberto Poljak** (Johns Hopkins Univ.) *Three Dimensional Structure of Human Immunoglobulin*. March 22, 1974.
- David J. Rose, Warren A. Roberts, and John W. Wilson** (MIT, Phillips Petroleum, and Energy Consultant) *Panel Discussion: Oil Resources and Energy Policy*. March 14, 1974.
- K. C. Hoffman** (Brookhaven National Laboratory) *Hydrogen Energy Systems – Near and Long Term Prospects*. March 8, 1974.
- J. F. Bell** (Johns Hopkins Univ.) *A Modern Perspective on 18th and 19th Century Experiments in the Physics of Solids*. March 1, 1974.
- S. P. Maran** (NASA Goddard Space Flight Center) *Comet Kahoutek in Retrospective*. February 22, 1974.
- E. W. Montroll** (Univ. of Rochester) *Energy Transport in Photosynthetic Units*. February 15, 1974.
- James Van Allen** (JHU/APL and Univ. of Iowa) *The Pioneer 10 Encounters Jupiter*. February 8, 1974.
- Owen M. Phillips** (Johns Hopkins Univ.) *Breaking Waves and Ocean White Caps*. February 1, 1974.
- D. M. Gilford** (National Academy of Sciences) *Can a Statistician Influence Policy in American Education?* January 25, 1974.
- P. O. Clark** (Hughes Research Labs) *Recent Developments in Laser Technology*. January 18, 1974.
- H. D. Mills** (IBM Federal Systems) *Math as Structured Programming or How to Cut the Gordian Knot*. January 11, 1974.

Irving S. Cooper (St. Barnabas Hospital) *The Present and Potential Use of a Brain Pacemaker.* December 21, 1973.

K. B. Lewis (Johns Hopkins Univ.) *The Nature of Heart Disease.* December 14, 1973.

Donn B. Parker (Control Data Corp.) *Computer Abuse.* December 7, 1973.

E. S. Starkman (General Motors Corp. and Univ. of California) *The Automobile and the Environment in an Era of Conflicting Demands.* November 30, 1973.

A. D. Moore (Univ. of Michigan) *Electrostatics in Action.* November 16, 1973.

Christopher H. Scholz (Columbia Univ.) *The Physics of Earthquakes and Earthquake Prediction.* November 9, 1973.

A. F. Aveni (Colgate Univ. and Univ. of South Florida) *Astronomy and City Planning in Ancient Mexico.* November 2, 1973.

G. E. Smith (Bell Telephone Laboratories) *An Overview of Charge Coupled Devices.* October 26, 1973.

T. S. Huang (Purdue Univ.) *Image Enhancement by Computer.* October 19, 1973.

T. O. Poehler (JHU/APL) *High Temperature Superconductivity?* October 12, 1973.

1972 – 1973

Robert E. Fischell (JHU/APL) *A Rechargeable Heart Pacemaker: Evolution of a 'Better Mouse Trap.'* May 25, 1973.

Carl E. Fichtel (NASA Goddard Space Flight Center) *Gamma-Ray Astronomy From SAS-2.* May 18, 1973.

Abraham J. Sachs (Brown Univ.) *Deciphering Babylonian Astronomy.* May 11, 1973.

W. A. Fisher (U.S. Geological Survey) *Earth Resources From Satellites: ERTS and EROS.* May 4, 1973.

Betty Vetter (Scientific Manpower Commission) *How Many Engineers (Or Scientists) Are Enough?* April 27, 1973.

S. I. Rasool (National Aeronautics and Space Administration) *Atmospheres of Mars, Venus, and Earth - A Problem in Atmospheric Evolution.* April 20, 1973.

Peter Parker (Yale Univ.) *The Solar Neutrino Puzzle.* April 6, 1973.

S. Fred Singer (Univ. of Virginia) *When Does Growth Become Too Expensive?* March 23, 1973.

Julian Stanley (Johns Hopkins Univ.) *Mathematically Precocious Youngsters.* March 16, 1973.

- Joseph Weber** (Univ. of Maryland) *The Gravitational Radiation Experiment*. March 9, 1973.
- Estelle Ramey** (Georgetown Univ.) *Sex Differences From the Physiological Point of View: Facts and Fiction*. February 23, 1973.
- D. J. Williams** (NOAA) *Impact of Space Disturbances on Man's Immediate Environment*. February 16, 1973.
- Arnall Patz** (JHU School of Medicine) *Photocoagulation With a Special-Purpose Laser*. February 9, 1973.
- H. F. Harmuth** (The Catholic Univ. of America) *Survey of R&D in the Field of Walsh Functions*. February 2, 1973.
- M. L. Hill** (JHU/APL) *Use of Atmospheric Electricity for Aircraft Stabilization*. January 26, 1973.
- R. C. Elton** (Naval Research Laboratory) *Recent Developments in X-Ray Lasers at NRL*. January 19, 1973.
- M. H. Cohen** (Univ. of Chicago) *Control of Biological Development in a Simple Living Organism*. January 12, 1973.
- D. W. Pritchard** (Johns Hopkins Univ.) *The Effect of Hurricane Agnes on the Chesapeake Bay*. December 15, 1972.
- G. H. Brown** (Kent State Univ.) *The Properties and Structure of Liquid Crystals*. December 8, 1972.
- Carrol M. Williams** (Harvard Univ.) *New Approaches to the Selective Control of Insect Pests*. December 1, 1972.
- J. Tuzo Wilson** (Univ. of Toronto) *The Physical Study of Earth and the Scientific Revolution It Has Caused*. November 17, 1972.
- Oskar Morgenstern** (New York Univ.) *A Cost/Benefit Analysis of the Space Shuttle*. November 10, 1972.
- Robert Ardrey** (Author) *The Biology of Behavior*. November 3, 1972.
- C. K. Jen** (JHU/APL) *My Impressions of Science and Technology in China*. October 27, 1972.
- Max V. Mathews** (Bell Telephone Laboratories) *Computer Music and Other Unusual Computer Applications*. October 20, 1972.
- Robert E. Fischell** (JHU/APL) *Triad – A 4-Ounce Satellite in a 200 Pound Box*. October 13, 1972.
- John H. Nuckolls and Lowell Wood** (Lawrence Livermore Laboratory) *Laser Fusion*. October 6, 1972.

1971 – 1972

- M. Olson** (Univ. of Maryland) *The National Income and the Quality of Life*. June 2, 1972.
- Alexander Marshack** (Harvard Univ.) *Early Ice-Age Intelligence as Revealed by Notation and Art*. May 19, 1972.
- Joseph Smogarinsky** (NOAA Geophysical Fluid Dynamics Laboratory) *The Global Atmospheric Circulation*. May 5, 1972.
- Theodor Hansch** (Stanford Univ., 2005 Nobel Prize for Physics) *Saturation Spectroscopy With Tunable Dye Lasers*. April 28, 1972.
- Richard A. Farrell** (JHU/APL) *Transparency and Structure of the Cornea*. April 21, 1972.
- Remo Ruffini** (Princeton Univ.) *Black Holes in Our Galaxy*. April 14, 1972.
- W. K. Hartmann** (Illinois Inst. of Technology) *Early Cratering History of the Solar System*. April 7, 1972.
- Roger F. Naill** (Massachusetts Inst. of Technology) *A Systems Dynamics Study of Nonrenewable Natural Resources*. March 31, 1972.
- Leo P. Kadanoff** (Brown Univ.) *Uses and Misuses of Urban Growth Models*. March 24, 1972.
- Clifford S. Russell, Walter O. Spofford, and Robert A. Kelly** (Resources of the Future) *Regional Environmental Quality Monitoring*. March 17, 1972.
- R. Langridge** (Princeton Univ.) *Interactive Computer Graphics in Molecular Biology*. March 10, 1972.
- Harold Schonhorn** (Bell Telephone Laboratories) *Surface Chemistry and Practical Adhesion*. February 25, 1972.
- Samuel Rosen** (Mt. Sinai Hospital Medical School) *A Physician's Report on His Visit to China*. February 18, 1972.
- Jesse W. Beams** (Univ. of Virginia) *The Measurement of the Gravitational Constant*. February 11, 1972.
- Armand H. Delsemme** (Univ. of Toledo) *Our Understanding of the Cometary Phenomena*. February 4, 1972.
- M. Gordon Wolman** (Johns Hopkins Univ.) *Is the World Livable?* January 28, 1972.
- William Sladen** (Johns Hopkins Univ.) *Adélie Penguins and Whistling Swans: A Study of Gregarious Individuals*. January 14, 1972.
- C. Kumar N. Patel** (Bell Telephone Laboratories) *Tunable Raman Lasers*. January 7, 1972.

Timothy Williams and Janet Williams (State Univ. of New York) *Tracking Radar Studies of Bird Migrations*. December 17, 1971.

Donald Mitz (NASA Headquarters) *NASA's Planetary Program*. December 10, 1971.

S. Fred Singer (Univ. of Virginia) *Is There an Optimum Level of Population?* December 3, 1971.

James S. Coleman (Johns Hopkins Univ.) *Entry of the Young Into Adult Society*. November 19, 1971.

Milton Moon (JHU/APL) *Some Alternatives for Air Traffic Control*. November 12, 1971.

Stuart W. Churchill (Univ. of Pennsylvania) *Choosing Between Theory and Experiment*. November 5, 1971.

John C. Kohl (Commissioner of Transportation of New Jersey) *Urban Transit and Institutional Inertia*. October 29, 1971.

Henry M. Seidel (Johns Hopkins Univ.) *The 'Overselling' of the Physician*. October 22, 1971.

Louis S. B. Leakey (Center for Prehistory and Paleontology) *Man: Past, Present – Future?* October 8, 1971.

1970 – 1971

R. Conrad (Medical Research Council) *Why We Talk to Ourselves When We Read*. May 21, 1971.

David Rabenhorst (JHU/APL) *The Superflywheel*. May 14, 1971.

John Calhoun and Leonard Olson (National Inst. of Mental Health) *Social Physics of Experimental Animal Populations*. May 7, 1971.

George F. Pieper (NASA Goddard Space Flight Center) *Priorities for Space Research in the 1970s*. April 30, 1971.

Herbert Gursky (Naval Research Laboratory) *X-Ray Astronomical Observations From SAS-A*. April 16, 1971.

Athelstan F. Spilhaus (American Association for the Advancement of Science) *Toward a Steady World*. April 9, 1971.

Albert Owens (Johns Hopkins Univ.) *Acute Leukemia: Investigative Challenges*. April 2, 1971.

Leon M. Lederman (Columbia Univ., 1988 Nobel Prize for Physics) *Elementary Particles: Speculation and Fantasy*. March 26, 1971.

Alexander M. Letov (Inst. for Control Problems) *A Survey of Soviet Spacecraft*. March 22, 1971.

Max Singer (Hudson Inst.) *Drug Abuse Policy*. March 12, 1971.

P. K. Tien (Bell Telephone Laboratories) *Light Waves in Thin Films and Integrated Micro-Optics*. February 19, 1971.

M. S. Eisenhower (Johns Hopkins Univ.) *To Insure Domestic Tranquility*. February 12, 1971.

Joseph Weber (Univ. of Maryland, College Park) *The Gravitational Radiation Experiment*. February 5, 1971.

David M. Gates (Washington Univ. and Missouri Botanical Gardens) *Energy Exchange With the Environment of Plants and Animals*. January 29, 1971.

Norman A. Blum (JHU/APL) *The Mossbauer Effect in High Magnetic Fields*. January 22, 1971.

Tsu Kai Chu (Princeton Univ.) *Feedback and Dynamic Control of Plasma Instabilities*. January 15, 1971.

Maurice M. Shapiro (Naval Research Laboratory) *Galactic Confinement of Cosmic Rays*. January 8, 1971.

Chung-ming Wong (U.S. Dept. of Interior) *Environmental Survival: A New Challenge for Engineers and Scientists*. December 18, 1970.

Charles Blake (Federal Aviation Administration) *SST Program Rationale and Status*. December 11, 1970.

Robert H. Cannon (U.S. Dept. of Transportation) *Some Advanced Transportation Programs*. December 4, 1970.

Joseph Schiebel (Georgetown Univ.) *The Soviet Scientist and Dissent*. November 27, 1970.

Morton B. Panish (Bell Telephone Laboratories) *The Evolution of a Room-Temperature CW Junction Laser*. November 20, 1970.

Lewis T. Claiborne (Texas Instrument Company) *Application of Ultrasonic Surface Waves to Signal Processing*. November 13, 1970.

Arthur Squires (City Univ. of New York) *Clean Power From Coal*. October 30, 1970.

Walter Elsasser (Univ. of Maryland) *Solid Geophysics: From Sea Floor Spreading to Mountain Building*. October 16, 1970.

Lauren Rueger (JHU/APL) *Time and Frequency Standardization*. October 9, 1970.

1969 – 1970

Robert A. Makofski (JHU/APL) *Technical and Economic Evaluation of Urban Transportation Systems*. May 15, 1970.

J. Murray Mitchell (ESSA Research Laboratories) *Air Pollution and Global Climatic Change*. May 8, 1970.

- Thomas Collins** (National Accelerator Laboratory) *The Present Status and Future Plans of the National Accelerator Laboratory (N.A.L.)*. May 1, 1970.
- Stanislaw Ulam** (Univ. of Colorado) *Some Unusual Uses of Computers and Computing*. April 24, 1970.
- Irwin Shapiro** (Massachusetts Inst. of Technology) *Radio and Radar Tests of General Relativity*. April 17, 1970.
- Joseph Tydings** (Senate) *Crime, Judicial Reform, and Urban Problems*. April 10, 1970.
- William Paddock** (Tropical Agriculture Development) *How Green Is the 'Green' Revolution?* April 3, 1970.
- Hannes Alfvén** (Univ. of California San Diego, 1970 Nobel Prize for Physics) *Mission to an Asteroid*. March 26, 1970.
- Leo Goldberg** (Harvard Univ.) *Maser Effects in the Interstellar Medium*. March 20, 1970.
- L. Eugene Cronin** (Univ. of Maryland) *The Chesapeake at Bay*. March 13, 1970.
- Robert R. Stromberg** (National Bureau of Standards) *Polywater*. March 6, 1970.
- Robert H. Kargon** (Johns Hopkins Univ.) *Science's Public Malaise*. February 27, 1970.
- Terrill A. Cool** (Cornell Univ.) *Continuous-Wave All-Chemical Lasers*. February 20, 1970.
- M. King Hubbert** (U.S. Geological Survey) *Physical Constraints in the Evolution of an Industrial Culture*. February 13, 1970.
- R. E. Rosensweig** (Ferrofluidics Corporation) *Magnetic Fluid Technology*. February 6, 1970.
- Simon Foner** (MIT Lincoln Laboratory) *High Field Magnetism and Some Applications*. January 30, 1970.
- M. Liebenberg** (Dept. of Commerce) *The Office of Business Economics (O.B.E.) Quarterly Econometric Model of the U.S. Economy*. January 23, 1970.
- A. F. Haught** (United Aircraft Research Laboratories) *Laser Produced Plasmas*. January 16, 1970.
- Albert Crewe** (Univ. of Chicago) *High-Resolution Scanning Electron Microscopy*. December 12, 1969.
- R. C. Powell** (U.S. Coast Guard) *The Tanker Manhattan Through the Northwest Passage*. December 5, 1969.
- Samuel E. Clements** (Dept. of Defense) *Department of Defense R&D Policy*. November 21, 1969.
- Stephen P. Maran** (National Aeronautics and Space Administration) *Pulsars and the Crab Nebula*. November 14, 1969.

Carroll Alley (Univ. of Maryland) *The Apollo 11 Laser Ranging Retro-Reflection Experiment*.
November 7, 1969.

Lawrence Goldmuntz (U.S. Dept. of Transportation) *A Proposed Solution for Air Traffic Control*.
October 31, 1969.

Derrick Scovil (Bell Telephone Laboratories) *Magnetic Bubbles*. October 24, 1969.

Edward C. T. Chao (U.S. Geological Survey) *Preliminary Results of Apollo 11 Lunar Samples*.
October 17, 1969.

Edward C. Smith (American Univ. and JHU/APL) *Urban Tribalization in Washington DC: A Study of Invisible Political Power*. October 10, 1969.

1968 – 1969

E. S. Starkman (Univ. of California Berkeley) *Control of Vehicular Emissions: Methods and Limitations*. May 29, 1969.

Margaret Mead (American Museum of Natural History) *Cultural Factors and Population Control*.
May 23, 1969.

Woodrow Seamone (JHU/APL) *The Man-Machine Interface in the Use of Artificial Hands*. May 16, 1969.

Peter G. Fielding (Booz Allen Research) *The Status of Surface-Effect Vehicles*. May 9, 1969.

Raymond J. Seeger (National Science Foundation) *Nature, Art, and Mathematics*. May 2, 1969.

John S. Rinehart (ESSA Research Laboratories) *Why Geysers Are Faithful*. April 25, 1969.

Louis Flexner (Univ. of Pennsylvania) *Memory*. April 18, 1969.

Martin A. Uman (Westinghouse Research and Development) *Lightning*. April 11, 1969.

Hellmut Fritzsche (Univ. of Chicago) *Amorphous Semiconductors, New Physics, and a New Technology*. March 28, 1969.

Harold Hoekstra (Federal Aviation Administration) *Hijacking*. March 21, 1969.

Ernest Stern (Massachusetts Inst. of Technology) *Progress Report on Micro-Sound Technology*.
March 14, 1969.

Reid A. Bryson (Univ. of Wisconsin Center for Climatic Research) *Effects of Atmospheric Pollution on Climate*. March 7, 1969.

J. Lamar Worzel (Columbia Univ. Lamont Geological Observatory) *Are the Continents Drifting?*
February 28, 1969.

William S. Albright (Johns Hopkins Univ.) *How One Reconstructs an Ancient Civilization*. February 14, 1969.

C. A. Doxiadis (Doxiadis Associates, Athens, Greece) *An Open-Ended Discussion on Human Settlements*. February 7, 1969.

John L. Colp (Sandia Laboratories) *Terradynamics*. January 31, 1969.

Anthony J. DeMaria (United Aircraft Research Laboratories) *Ultra-Short Laser Pulses*. January 24, 1969.

Frank White (Aviation Transport Association) *Airborne Collision-Avoidance Technology*. January 17, 1969.

John P. Craven (Dept. of the Navy) *Design of Small Submersibles*. January 10, 1969.

John B. Garrison, D. G. Grant, M. M. Hart, and Woodrow Seamone (JHU/APL) *Topics Selected From APL's Medical Engineering Activities*. December 13, 1968.

Philip Abelson (Carnegie Geophysical Laboratory) *Science and Politics 1969; The Road Bends Sharply*. December 6, 1968.

Peter H. Rossi (Johns Hopkins Univ.) *Civil Disorders and the Politics of Discontent*. November 22, 1968.

S. Fred Singer (U.S. Dept. of Interior) *Origin of the Moon and Geophysical Consequences*. November 15, 1968.

L. M. Murphy (Environmental Science Service Administration) *The Mechanisms of Earthquakes*. November 8, 1968.

Abraham Robinson (Yale Univ.) *The Rebirth of the Infinitesimal*. November 1, 1968.

Daniel B. DeBra (Stanford Univ.) *Theory and Experiments With Drag-Free Satellites*. October 25, 1968.

Roy Britton (Carnegie Inst. of Technology) *Repeating DNA Sequences and Evolution*. October 18, 1968.

William Avery (JHU/APL) *An Integrated Urban-Interurban Transportation Concept*. October 11, 1968.

1967 - 1968

Isadore Katz (JHU/APL) *Clear-Air Turbulence*. May 10, 1968.

M. Danos (National Bureau of Standards) *Whither Nuclear Physics?* May 3, 1968.

Howard R. Penniman (Georgetown Univ.) *The Proposed New Maryland Constitution*. April 30, 1968.

- Theodore O. Poehler and Robert Turner** (JHU/APL) *Far-Infrared Lasers and Their Application*. April 26, 1968.
- John A. O'Keefe** (NASA Goddard Space Flight Center) *Surveyor and Other New Results on the Lunar Surface*. April 19, 1968.
- Abel Wolman** (Johns Hopkins Univ.) *Problems of the Environment*. April 12, 1968.
- Emmett N. Leith** (Univ. of Michigan) *Modern Holography*. April 5, 1968.
- Benjamin Widom** (Cornell Univ.) *Phase Transitions and Critical Phenomena*. March 29, 1968.
- Fred Friendly** (Columbia Univ. and Ford Foundation) *The Use of Satellites for Educational Television*. March 22, 1968.
- Harold Sobol** (RCA Laboratories) *Integrated Circuitry for Microwaves*. March 15, 1968.
- Sterling A. Colgate** (New Mexico Inst. for Mining and Technology) *Supernova Interpretation of Quasars*. March 8, 1968.
- K. Kurokawa** (Bell Telephone Laboratories) *Applying the Gunn Effect to High-Speed Devices*. March 1, 1968.
- Clarence M. Fowler** (Los Alamos Scientific Laboratory) *Explosive Production of Multi-Megagauss Fields and Their Application*. February 16, 1968.
- Alan H. Barrett** (Massachusetts Inst. of Technology) *The Puzzling Radio Signals From Interstellar Hydroxyl Radicals*. February 2, 1968.
- Robert C. Wood** (Dept. of Housing and Urban Development) *The Use of Technology for Solving Urban Problems*. January 26, 1968.
- Richard J. Johns** (Johns Hopkins Univ.) *Biomedical Engineering From Different Viewpoints*. January 19, 1968.
- Edward W. Ungar** (Battelle Memorial Institute) *Ablation Cooling*. January 12, 1968.
- Nicholaas Bloembergen** (Harvard Univ., 1981 Nobel Prize for Physics) *Stimulated Raman Effect*. January 5, 1968.
- Dame Kathleen Lonsdale** (Univ. College of London) *Aging of Matter and Man*. December 15, 1967.
- Joseph Kirkpatrick** (Honeywell Corporation) *The Laser Gyro*. December 8, 1967.
- Nicolaas G. van Kampen** (Univ. of Utrecht and Howard Univ.) *Does a Moving Body Appear Cool?* December 1, 1967.

Leonard Mandel (Univ. of Rochester) *Interference of Independent Photon Beams*. November 17, 1967.

William D. Carey (Bureau of Budget) *Informal Talk About Science Budgeting*. November 10, 1967.

Curt P. Richter (Johns Hopkins Univ.) *The 24 Hour Clock in Animals and Man*. November 3, 1967.

Gerald Feinberg (Columbia Univ.) *The Possibility of Faster-Than-Light Particles*. October 27, 1967.

D. McRuer (Systems Technology Inc.) *The Human Being as a Control Element*. October 20, 1967.

Robert R. Newton (JHU/APL) *Why the Earth Is Slowing Down*. October 13, 1967.

1966 – 1967

Richard B. Kershner (JHU/APL) *On Paving the Plane*. May 19, 1967.

John Mackenzie (Rensselaer Polytechnic Inst.) *Electronically Conducting Glasses*. May 12, 1967.

Herman Kahn (Hudson Institute) *The Next Thirty-Three Years*. May 5, 1967.

William Feldman (Eastman Kodak Corporation) *The Photographic System of the Lunar Orbiter*. April 28, 1967.

Luigi Jacchia (Smithsonian Astrophysical Observatory) *Structure and Variations of the Upper Atmosphere*. April 21, 1967.

William Parker (Univ. of Pennsylvania) *Measurement of $2e/h$ Using the AC Josephson Effect, and Its Implications for Knowledge of the Fundamental Physical Constants*. April 14, 1967.

R. B. Partridge (Princeton Univ.) *The Cosmic Background Radiation and the Primeval Fireball*. April 7, 1967.

Allen B. Holmes (Harry Diamond Laboratory) *Fluidic Missile Control*. March 31, 1967.

Michael J. Salkind (United Aircraft Corporation Research Laboratory) *Whiskers and Fibers*. March 24, 1967.

Lester S. Eastman (Cornell Univ.) *The Gunn Effect – Status and Prospects*. March 17, 1967.

G. Sargent James (Avco-Everett Research Laboratories) *The Trapping and Acceleration of Ions in Electron Plasmas*. March 10, 1967.

William Happ (NASA Electronics Research Center) *The Use of Computers in Designing Electronic Circuits*. March 3, 1967.

H. I. Forman (Rohm & Haas Co.) *Government Patent Policy – Yesterday, Today, and Tomorrow*. February 24, 1967.

- William B. Kouwenhoven** (JHU) *Effects of Electric Shock on the Human Body*. January 20, 1967.
- I. M. Rubin** (Massachusetts Inst. of Technology) *Factors in the Performance of R&D Projects*. January 13, 1967.
- L. J. Cutrona** (Univ. of Michigan and Conductron Corp.) *Electro-Optical Data Processing*. December 16, 1966.
- Anne Roe** (Harvard Univ.) *The Creative Life Patterns in Scientists and Artists*. November 18, 1966.
- F. Phillip Bowden** (Cambridge Univ.) *Molecularly Flat Surfaces*. November 11, 1966.
- Karl F. Herzfeld** (Catholic Univ. of America) *Newton's 'Laws' – Laws or Definitions?* October 28, 1966.
- Herman Z. Cummins** (Johns Hopkins Univ.) *Ultrahigh-Resolution Laser Techniques*. October 21, 1966.
- Gerald V. Bull** (McGill Univ.) *Gun-Launched Satellites*. October 14, 1966.
- Robert M. Fristrom** (JHU/APL) *Molecular Beam – A Tool for Chemical Research*. October 7, 1966.
- 1965 – 1966**
- Robert E. Fischell** (JHU/APL) *Spacecraft Attitude-Control Systems*. May 13, 1966.
- Daniel S. Greenberg** (Science Magazine) *Science and Politics*. May 6, 1966.
- Louis Rosen** (Los Alamos Scientific Laboratories) *Meson Factories*. April 29, 1966.
- Stuart E. Miller** (Bell Telephone Laboratories) *Optical Transmission Systems*. April 22, 1966.
- Richard Courant** (New York Univ.) *On Numerical Analysis of the Equations of Mathematical Physics*. April 15, 1966.
- William B. Brower** (Rensselaer Polytechnic Inst.) *High-Speed Ground Transport Through Flight in Nonevacuated Tubes*. April 8, 1966.
- Robert G. Sachs** (Argonne National Laboratory and Univ. of Chicago) *The Concept of Time-Reversal Invariance in Physics*. March 30, 1966.
- Melvin Lax** (Bell Telephone Laboratories) *Noise in Laser Oscillators*. March 25, 1966.
- Robert Frosch** (Advanced Research Projects Administration) *Seismic Arrays*. March 11, 1966.
- L. S. Kubie** (Sheppard-Pratt Hospital) *Blocks to Creativity*. March 4, 1966.
- Hong-Yee Chiu** (Goddard Inst. of Space Studies) *Astrophysical Evidence for the Direct Electron-Neutrino Interaction*. February 25, 1966.

Oskar Klein (Univ. of Stockholm and Brandeis Univ.) *On the Origin of Our Local System of Galaxies.* February 18, 1966.

William H. Huggins (Johns Hopkins Univ.) *Computerized Animation for Educational Films.* February 11, 1966.

Edward Mason (Univ. of Maryland) *Oscillating Instabilities in Diffusing Gases.* February 4, 1966.

F. T. Cole (Lawrence Radiation Laboratory, Univ. of Calif.) *Design Study for the 200-Bev Accelerator.* January 25, 1966.

Jack Rabinow (Rabinow Electronics) *Inventions and Patents.* January 14, 1966.

Wendell R. Garner (Johns Hopkins Univ.) *Research in Pattern Perception.* January 7, 1966.

N. F. Ness (NASA Goddard Space Flight Center) *The Interaction of the Solar Wind With the Geomagnetic Field.* December 17, 1965.

Robert Panero (Hudson Inst.) *New Approaches to Latin American Technical Development.* December 10, 1965.

Bernard Smith (U.S. Naval Weapons Laboratory) *New Thoughts About Old Platforms: Railroads and Sailboats.* December 3, 1965.

Arthur Kantrowitz (Avco-Everett Research Laboratories) *Magnetohydrodynamic Generators.* November 19, 1965.

Paul A. Castleman (Bolt, Beranek, and Newman) *Computer-Aided Patient Care in a General Hospital.* November 12, 1965.

Solomon J. Buchsbaum (Bell Telephone Laboratories) *Waves and Resonances in Solid-State Plasmas.* November 5, 1965.

Leonard S. Rodberg (U.S. Arms Control and Disarmament Agency) *Some Technical Problems of Arms Control.* October 29, 1965.

Charles F. Curtiss (Univ. of Wisconsin) *Transport Phenomena in Gases.* October 22, 1965.

Alfred Zmuda (JHU/APL) *Ionospheric Disturbances Related to High-Altitude Nuclear Explosions.* October 15, 1965.

1964 – 1965

Walter P. Dyke (Linfield College) *Recent Progress in Field Emission and Its Applications.* May 28, 1965.

Conrad Weisert (JHU/APL) *Computer Systems 1967.* May 21, 1965.

Benjamin Lax (Lincoln Laboratory) *Progress in Quantum Electronics.* May 14, 1965.

- G. W. Stroke** (Univ. of Michigan) *Optical Holography and X-Ray Microscopy*. May 7, 1965.
- Carl Kiess** (Georgetown Univ.) *An Interpretation of Martian Phenomena*. April 9, 1965.
- Donald Nordeen** (General Motors Research Lab) *Stability of Automobiles*. April 2, 1965.
- William J. Spencer** (Bell Telephone Laboratories) *Ultrastable Quartz Crystal Oscillators*. March 19, 1965.
- Albert J. Perlis** (Carnegie Inst. of Technology) *Formula Manipulation on Computers*. March 12, 1965.
- Nelson Spencer** (NASA Goddard Space Flight Center) *Energy Relationships in the Thermosphere*. March 5, 1965.
- James W. Rouse** (Community Research and Development Company) *The Planning Process – In Columbia, Maryland*. February 26, 1965.
- P. James Peebles** (Princeton Univ.) *Gravity Research at Princeton*. February 19, 1965.
- Arthur Bonney** (Arlington Presbyterian Church) *A Scientist Looks at Faith*. February 12, 1965.
- John Jarem** (Drexel Inst. of Technology) *Radar Scattering From Turbulent Wakes*. February 5, 1965.
- Peter A. Wolff** (Bell Telephone Laboratories) *Quantum Effects in Solid State Plasma*. January 22, 1965.
- Morgan D. Dubrow** (U.S. Dept. of Interior) *The Development and Application of Extra-High-Voltage Transmission in the United States*. January 15, 1965.
- Michael J. Deutch** (Consulting Engineer, Washington DC) *Economics of Nuclear Power*. January 8, 1965.
- Sarah Stewart** (National Cancer Inst.) *Viruses and Cancer*. December 18, 1964.
- Herbert Friedman** (Naval Research Laboratory) *X-Rays From Supernovae*. December 4, 1964.
- Holbrook MacNeille** (Case Inst. of Technology) *Experimental Films in Mathematics Teaching*. November 20, 1964.
- Phillip Converse** (Univ. of Michigan) *Elections and Opinion Polls*. November 13, 1964.
- Wilmot Hess** (NASA Goddard Space Flight Center) *Origins of Protons in the Outer Radiation Zone*. November 6, 1964.
- Gordon Lill** (National Science Foundation) *Project Mohole*. October 30, 1964.
- Sidney Metzger** (Communications Satellite Corporation) *Technical Program of the Communications Satellite Corporation*. October 23, 1964.

Stanley Donald Stookey (Corning Glass Corporation) *Photochromic Glasses*. October 16, 1964.

Joseph F. Bird (JHU/APL) *Star Formation*. October 9, 1964.

1963 – 1964

P. E. James (Syracuse Univ.) *New Viewpoints on Geography and National Power*. May 27, 1964.

Carl O. Bostrom (JHU/APL) *Results of Particle Measurements From APL Satellites*. May 22, 1964.

S. Goldblith (Massachusetts Inst. of Technology) *Radiation Preservation of Foods – Present Status and Future Prophecy*. May 15, 1964.

H. Guerlac (Cornell Univ.) *New Light on Newton's Optics*. May 8, 1964.

P. Morrison (Cornell Univ. and Massachusetts Inst. of Technology) *Cosmic X-Rays and Gamma Rays*. May 1, 1964.

R. W. Hamming (Bell Telephone Laboratories) *Chebyshev Approximation – The Minimax Criterion as an Alternative to Least Squares*. April 24, 1964.

Jesse W. Beams (Univ. of Virginia) *Some Experiments With High Constant-Speed Rotors*. April 10, 1964.

R. E. Behrends (Yeshiva Univ.) *New Insight Into Elementary Particles – The Eightfold Way*. April 3, 1964.

Abraham Bers (Massachusetts Inst. of Technology) *The Nature of Stable and Unstable Waves in Plasmas and Other Dispersive Media*. March 20, 1964.

Donald Pritchard (Johns Hopkins Univ.) *Research and Education in Oceanography at the Johns Hopkins University*. March 13, 1964.

Alexander Flax (Dept. of Defense) *Panel Flutter – Classical Small-Oscillation Theory Revisited*. March 6, 1964.

Lindsey Harmon (National Academy of Sciences) *Trends and Issues in Scientific Manpower Production*. February 28, 1964.

Samuel N. Alexander (National Bureau of Standards) *Where Are the Frontiers of Information and Data Processing Today?* February 21, 1964.

Aristide V. Grosse (Temple Univ.) *Noble Gas Compounds*. February 14, 1964.

Paul D. Maker (Ford Motor Company) *Some Experiments in Nonlinear Optics*. February 7, 1964.

H. C. Eagle (Albert Einstein Medical School) *Experimental Application of Cultured Animal Cells*. January 31, 1964.

- Carleen Hutchins** (Acoustician and Violinmaker) *The Physics of Violins – With Musical Illustrations*. January 17, 1964.
- W. E. Danielson** (Bell Telephone Laboratories) *Problems in Ballistic Missile Defense*. January 10, 1964.
- S. Fred Singer** (Univ. of Maryland and U.S. Weather Bureau) *Weather Satellites*. January 3, 1964.
- Ali Javan** (Massachusetts Inst. of Technology) *Application of the Gaseous Laser to Precision Measurements*. December 13, 1963.
- Max A. Butterfield** (U.S. Post Office) *Problems in Handling Large Volumes of Mail*. December 6, 1963.
- M. S. Eisenhower** (Johns Hopkins Univ.) *Latin America on the Verge of Revolution*. November 15, 1963.
- M. Kac** (Rockefeller Inst.) *The Statistical Mechanics of Some One-Dimensional Systems*. November 1, 1963.
- R. C. Oldfield** (Oxford Univ.) *Memory and the Theory of Schema*. October 30, 1963.
- John B. Fenn** (Princeton Univ., 2002 Nobel Prize for Chemistry) *High-Intensity Molecular Beams*. October 25, 1963.
- T. R. Carver** (Princeton Univ.) *Optical Pumping and Atomic Clocks*. October 18, 1963.
- A. C. Pearce** (Bell Comm) *Physics on the Moon*. October 11, 1963.
- Robert R. Newton** (JHU/APL) *The Shape of the Earth*. October 4, 1963.
- 1962 – 1963**
- C. Meyer** (JHU/APL) *Evaluation of Surface-To-Air Missile Systems*. May 24, 1963.
- H. S. M. Coxeter** (Univ. of Toronto) *The Mathematics of Map Coloring*. May 17, 1963.
- F. Press** (California Inst. of Technology) *Recent Developments in Seismology*. May 14, 1963.
- N. H. Frank** (Massachusetts Inst. of Technology) *A New Look at the Teaching of College Physics*. May 3, 1963.
- G. Rado** (Naval Research Laboratory) *Magnetolectric Effects in Antiferromagnets*. April 12, 1963.
- M. Baranger** (Carnegie Inst. of Technology) *Recent Work on Nuclear Structures*. April 5, 1963.
- J. Blewett** (Brookhaven National Laboratory) *Design Studies for 300 to 1000 BeV Accelerators and the Future of Large Accelerators*. March 22, 1963.
- T. Litovitz** (Catholic Univ.) *Ultrasonic Spectroscopy in Liquids*. March 15, 1963.

- J. Ragazzini** (New York Univ.) *Sampled Data Systems*. March 8, 1963.
- Herman F. Mark** (Brooklyn Polytechnic Inst.) *New Events in the Physics of Polymers*. March 1, 1963.
- G. Leichner** (Univ. of Illinois) *Use of Digital Computers for Circuit Design*. February 15, 1963.
- Conway Snyder** (Jet Propulsion Laboratory) *Results From the Mariner II Spacecraft*. February 14, 1963.
- S. K. Friedlander and S. H. Talbot** (Johns Hopkins Univ.) *Topics in Biomedical Engineering*. February 8, 1963.
- W. L. Brown** (Bell Telephone Laboratories) *Recent Observations of the Artificial Radiation Belts*. January 18, 1963.
- T. Reynolds** (St. Elizabeth's Hospital) *A Research Program in a Mental Hospital*. January 11, 1963.
- W. Tantraporn** (General Electric) *Thin-Film Active Elements for Use in Microelectronics*. January 4, 1963.
- Leon M. Lederman** (Columbia Univ., 1988 Nobel Prize for Physics) *Experiments With High-Energy Neutrinos*. December 7, 1962.
- H. Margenau** (Yale Univ.) *The Quantum Theory of Measurement*. November 30, 1962.
- G. F. Carrier** (Harvard Univ.) *On the Wind-Driven Ocean Circulation*. November 16, 1962.
- D. B. Beard** (Univ. of California) *Microwave Emission From Jupiter*. November 9, 1962.
- E. M. Pugh** (Carnegie Institute of Technology) *Fundamental Principles in the Projection and Impact Phenomena of High Speed Pellets*. November 2, 1962.
- E. J. Sternglass** (Westinghouse Research) *Classical Models of the Elementary Particles*. October 26, 1962.
- W. L. Faust** (Bell Telephone Laboratories) *Some Recent Experiments With Gaseous Optical Masers*. October 19, 1962.
- R. R. Nelson** (President's Council of Economic Advisors) *Scientific Research and Economic Growth: Some Problems of Public Policy*. October 12, 1962.
- L. J. Rueger** (JHU/APL) *Time and Frequency Standards for the Transit Satellite Program*. October 5, 1962.
- 1961 – 1962**
- G. F. Pieper** (JHU/APL) *Research Results From the Injun and TRAAC Satellites*. May 25, 1962.

- L. M. Branscomb** (National Bureau of Standards) *The Structure and Spectra of Negative Atomic Ions*. May 18, 1962.
- D. L. Allen** (Purdue Univ.) *Studies on the Population Balance Between Moose and Wolves on Isle Royale*. May 11, 1962.
- S. Bhagavantam** (Indian Inst. of Science) *Crystal Symmetry and Physical Properties*. May 4, 1962.
- V. L. Telegdi** (Univ. of Chicago) *Present Problems of Muon Physics*. April 27, 1962.
- Manfred R. Schroeder** (Bell Telephone Laboratories) *Artificial Reverberation, Pseudostereophony, and the Digital Simulation of Concert-Hall Acoustics*. April 20, 1962.
- T. Fulton** (Johns Hopkins Univ.) *Classical Radiation From Uniformly-Accelerated Electrons*. April 6, 1962.
- W. B. Fowler** (Brookhaven National Laboratory) *Bubble Chamber Physics at the Brookhaven National Laboratory*. March 30, 1962.
- R. Ferrell** (Univ. of Maryland) *Collective Oscillations of Normal and Superconducting Electrons*. March 23, 1962.
- S. Mason** (Massachusetts Inst. of Technology) *Sensory Communication for the Blind*. March 16, 1962.
- J. Charney** (Massachusetts Inst. of Technology) *Some Problems in the Dynamics of Planetary Atmospheres*. March 9, 1962.
- R. P. Hudson** (National Bureau of Standards) *Some Experiments on Spin-Lattice Relaxation in Rare-Earth Salts*. March 2, 1962.
- C. P. Sonett** (NASA) *Magnetic Disturbances in the Far Exosphere*. February 23, 1962.
- M. Nirenberg** (National Institutes of Health, 1968 Nobel Prize for Physiology/Medicine) *Progress Toward Breaking the Genetic Code*. February 16, 1962.
- R. L. Bisplinghoff** (Massachusetts Inst. of Technology) *Current Problems in Aero-Thermoelasticity*. January 19, 1962.
- J. E. Kunzler** (Bell Telephone Laboratories) *High-Field Superconductivity and Superconducting Magnets*. January 12, 1962.
- Philip Abelson** (Carnegie Geophysical Laboratory) *Current Research Relevant to the Origin of Life*. January 5, 1962.
- F. J. Weyl** (Office of Naval Research) *A Mathematician Looks at Memory*. December 15, 1961.
- D. K. Wessel** (Syracuse Univ.) *Some Recent Developments in Optical and Infrared Masers*. December 8, 1961.

G. Feldman (Johns Hopkins Univ.) *The Structure of the Nucleon in New Elementary Particles*. December 1, 1961.

David J. Rose (Massachusetts Inst. of Technology) *Some Recent Advances and Future Prospects in Controlled Thermonuclear Fusion*. November 24, 1961.

P. J. Debye (Cornell Univ., 1936 Nobel Prize for Chemistry) *Critical Opalescence and Molecular Interactions*. November 17, 1961.

E. L. O'Neil (Boston Univ.) *Modern Developments in Optics and Communications*. November 10, 1961.

John C. Lilly (Communications Research Institute) *Communications by Dolphins*. November 3, 1961.

S. Fritz (U.S. Weather Bureau) *The TIROS Meteorological Satellite*. October 27, 1961.

G. E. Kimball (A.D. Little Co.) *Unsolved Problems in Production Scheduling*. October 13, 1961.

R. P. Rich (JHU/APL) *Computer Trends*. October 6, 1961.

1960 – 1961

J. Caldwell (Beach Erosion Board) *Shore Processes and Coastal Engineering*. May 19, 1961.

T. Gold (Cornell Univ.) *Processes on the Lunar Surface*. May 12, 1961.

E. Burstein (Univ. of Pennsylvania) *Investigation of Excited Carriers in Superconductors*. May 5, 1961.

R. Strause-Hupe (Univ. of Pennsylvania) *Strategy and Value*. April 14, 1961.

O. Selfridge (MIT Lincoln Laboratory) *Discussion of Problems Associated With Machine Learning*. April 7, 1961.

J. W. Carr III (Univ. of North Carolina) *Computer Programming and Theorem Proving*. March 24, 1961.

G. W. Stroke (Massachusetts Inst. of Technology) *Recent Developments in Large Diffraction Gratings*. March 17, 1961.

M. Camac (AVCO Research Labs) *Plasma Propulsion*. March 10, 1961.

Harrison Brown (California Inst. of Technology) *Resources and the Future of Industrial Civilization*. March 3, 1961.

W. F. G. Swann (Bartol Foundation) *Relativity and the Twin Paradox*. February 24, 1961.

A. J. F. Siegert (Northwestern Univ.) *Theory of Random Functions With Applications to Noise in Radio*. February 17, 1961.

- N. F. Ramsey** (Harvard Univ., 1989 Nobel Prize for Physics) *Significance of Potentials in Quantum Theory*. February 10, 1961.
- R. V. Pound** (Harvard Univ.) *A Measurement of the Weight of Photons*. January 27, 1961.
- E. C. Pollard** (Pennsylvania State Univ.) *Radiation Action in Molecular Biophysics*. January 11, 1961.
- C. W. Little** (RCA Laboratories) *Engineering Problems of the Model-C Stellarator Machine*. January 6, 1961.
- T. A. Vanderslice** (GE Research Lab) *Ultra-High-Vacuum Techniques*. December 16, 1960.
- G. Gould** (Tech Research Group) *Coherent Generation of Light: LASER Devices*. December 9, 1960.
- R. M. Scammon** (Government Affairs Inst.) *Programming Election Predictions*. December 2, 1960.
- V. W. Hughes** (Yale Univ.) *Muonium*. November 18, 1960.
- R. Heikes** (Westinghouse Research) *Relationships Between Electrical and Magnetic Properties of Selenium*. November 11, 1960.
- D. Wechsler** (NYC College of Medicine) *Machine and Human Thinking*. October 21, 1960.
- Hugh Odishaw** (Space Science Board) *Some Aspects of the International Geophysical Year (IGY) of Current Interest*. October 14, 1960.

1959 – 1960

- J. L. Delcroix** (Univ. of Paris) *The Four Modes of Wave Propagation in Plasmas*. September 30, 1960.
- Eugene N. Parker** (Univ. of Chicago) *The Solar Wind*. April 22, 1960.
- Ernest P. Gray** (JHU/APL) *Diffusion and Recombination in Afterglows*. April 20, 1960.
- W. Markowitz** (U.S. Navy Observatory) *Precision Time and Frequency From VLF Transmissions*. April 15, 1960.
- Buckminster Fuller** (Southern Illinois Univ.) *Light-Weight Structures*. April 13, 1960.
- N. S. Kapany** (Armour Research Foundation) *Recent Work on Fiber Optics*. April 8, 1960.
- C. N. Yang** (Inst. for Advanced Study, 1957 Nobel Prize for Physics) *Some Considerations of Possible Experiments With High-Energy Neutrinos*. March 25, 1960.
- K. R. Atkins** (Univ. of Pennsylvania) *First, Second, Third, Fourth, and Zeroth Sounds in Liquid Helium*. March 18, 1960.

- M. S. Livingston** (Massachusetts Inst. of Technology and Harvard Univ.) *The 6-BeV Cambridge Electron Accelerator: Novel Problems.* March 11, 1960.
- M. I. Nathan** (IBM Research) *The Physics of the Esaki (Tunnel) Diode.* March 4, 1960.
- N. Marcuvitz** (Polytechnic Inst. of Brooklyn) *Fields and Plasmas.* February 26, 1960.
- R. W. Hoffman** (Case Inst. of Technology) *Magnetic and Mechanical Properties of Thin Films.* February 19, 1960.
- R. D. Richtmyer** (New York Univ.) *Some Numerical Calculations of Detached Shock Waves.* February 11, 1960.
- Joseph Weber** (Univ. of Maryland, College Park) *Gravitational Waves.* February 5, 1960.
- E. P. Wigner** (Princeton Univ., 1963 Nobel Prize for Physics) *Probability of Existence of a Self-Reproducing Unit.* January 22, 1960.
- William H. Huggins** (Johns Hopkins Univ.) *"Antennas" in Signal Space.* January 15, 1960.
- James W. Follin Jr.** (JHU/APL) *Initial Light-Element Formation in an Expanding Universe.* January 8, 1960.
- Herman Kahn** (Rand Corporation) *Nature and Feasibility of War and Deterrence.* December 18, 1959.
- Solomon J. Buchsbaum** (Bell Telephone Laboratories) *Interaction of an Electromagnetic Field With a Bounded Plasma.* December 11, 1959.
- H. C. Higgins** (Eastman Kodak Corporation) *The Applications of Communication Theory to Photographic Systems.* December 4, 1959.
- K. Bullington** (Bell Telephone Laboratories) *Systems Engineering for Speech Interpolation Equipment.* November 20, 1959.
- C. M. Herzfeld** (National Bureau of Standards) *Recent Developments in Crystal Field Theory.* November 13, 1959.
- J. A. Wheeler** (Princeton Univ.) *Einstein's Views of Space and Time: Present Status and Future Prospects.* November 6, 1959.
- F. T. McClure** (JHU/APL) *Solid-Propellant Rockets as Acoustic Resonators.* October 30, 1959.
- A. C. Kolb** (Naval Research Laboratory) *Acceleration and Confinement of Dense Plasmas.* October 23, 1959.
- D. R. Bates** (Queen's College, Belfast) *The Night Glow.* October 9, 1959.

1958 – 1959

- William H. Guier** (JHU/APL) *Satellite Tracking by Doppler Techniques*. May 22, 1959.
- W. Heikkila** (Defense Research Board) *Arctic Radio Propagation Phenomena*. May 15, 1959.
- S. B. Hendricks** (Dept. of Agriculture) *Physics and Biology, or the Physiology of Plants*. May 8, 1959.
- Robert R. Newton** (JHU/APL) *Optimization of Ballistic-Missile Trajectories*. April 24, 1959.
- G. Burbidge** (Yerkes Observatory) *Stellar Populations and the Chemical Evolution of the Stars*. April 17, 1959.
- A. A. Brown** (A.D. Little Co.) *Some Concepts of Civilian Operations Research*. April 10, 1959.
- F. J. Adrian** (JHU/APL) *Radio-Frequency Spectroscopy and the Chemical Bond*. April 3, 1959.
- G. Bekefi** (Massachusetts Inst. of Technology) *Microwave Plasma Diagnostics*. March 20, 1959.
- P. Morrison** (Cornell Univ.) *The Origins of Cosmic Rays*. March 13, 1959.
- J. Gurley** (Brookings Institution) *Theory of Money*. March 6, 1959.
- F. Rohrlich** (Johns Hopkins Univ.) *Negative Atomic Ions*. February 27, 1959.
- F. Rosi** (RCA Laboratories) *Evaluation and Properties of Materials for Thermoelectric Applications*. February 20, 1959.
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- L. J. Chu** (Massachusetts Inst. of Technology) *Macroscopic Electrodynamics*. January 23, 1959.
- D. E. Kerr** (Johns Hopkins Univ.) *Reactions in Low-Energy Plasmas*. January 16, 1959.
- P. L. Garvin** (Georgetown Univ.) *Mechanical Translation*. January 9, 1959.
- W. H. Louisell** (Bell Telephone Laboratories) *Parametric Amplifiers*. December 12, 1958.
- J. B. Johnson** (Thomas Edison Inc.) *Edison's Contribution to Thermionics*. December 5, 1958.
- J. L. Jackson** (National Bureau of Standards) *Free-Radical Statistics*. November 21, 1958.
- W. C. Elmore** (Swarthmore College) *The Compression of a Plasma by a Rising Axial Magnetic Field*. November 14, 1958.
- J. L. Prather** (George Washington Univ.) *Atomic Energy Levels in Crystals*. November 7, 1958.
- R. H. Simpson** (U.S. Weather Bureau) *Factors Influencing the Release of Energy in a Hurricane*. October 31, 1958.

S. C. Lin (AVCO Research Labs) *Recent Problems in High-Temperature Gas Dynamics*. October 17, 1958.

J. R. Pierce (Bell Telephone Laboratories) *Use of Satellites for Transoceanic Communications*. October 10, 1958.

N. W. Lord (JHU/APL) *Electron-Nuclear Double Resonance: A Sensitive Detector of Energy*. October 3, 1958.