Pioneers of National Reconnaissance

2015
The National Reconnaissance Pioneer Program recognizes and honors individuals who have made significant and lasting contributions to national reconnaissance—pioneering contributions that were innovative, remarkable, and changed the direction and scope of the discipline and its practice. It is the highest honor in the field of national reconnaissance.

For the Pioneer Class of 2015, the Director of National Reconnaissance, Ms. Betty Sapp, selected Mr. L. Porter Davis, whose innovation in developing control moment gyro (CMG) devices for maneuvering and controlling the attitude of large spacecraft represented ground-breaking and novel vibration isolation technology—a technological breakthrough that attenuated CMG vibration and reduced the negative impact of vibration on payload performance.

Today’s Heritage Recognition Ceremony formally inducts Mr. Davis, the 2015 Pioneer honoree, into NRO’s Pioneer Hall. Pioneer Hall is a collection of commemorative medallions, one for each of NRO’s Pioneer of National Reconnaissance. The medallions serve as enduring tributes to the pioneers’ trailblazing contributions to the discipline of national reconnaissance. This booklet includes the words that appear on Mr. Davis’ medallion and briefly explains the nature of Pioneer Davis’ specific contribution. Mr. Davis’ medallion now joins the other 91 medallions that commemorate the contributions of Pioneers from previous classes. When you visit Pioneer Hall, I encourage you to review the citations on the medallions to gain a sense of the scope of the Pioneers’ contributions and the lasting impact they had on the NRO and our nation’s national security.

Robert A. McDonald, PhD.
Director, Center for the Study of National Reconnaissance
Mr. L. Porter Davis
Mr. L. Porter Davis, during the mid-1960s, pioneered the development of control moment gyros (CMGs) for maneuvering and controlling the attitude of large spacecraft. The CMGs provided the NRO with innovative technology that led to the development of more agile satellites, affording increased collection capacity, with improved pointing performance and longer mission life. These highly complex electro-mechanical systems enabled NRO satellites to accomplish their essential missions for the nation.

Medallion Citation
During the late 1960s through the 1970s, Mr. Davis and his team designed and built the first control moment gyros (CMGs) used in national reconnaissance spacecraft. Prior to Mr. Davis’ innovations, the NRO controlled spacecraft attitude by firing low precision, life-limited, liquid-fueled reaction control thrusters or by utilizing agility-limited reaction wheel assemblies.

Developing CMGs required precision design in electromagnetics, high speed bearings, lubrications, exquisite balancing, and advanced control algorithms that pushed the capabilities of existing onboard spacecraft computers. A key in the development of the large high-torque CMG was the shell rotor. Unlike a conventional flat disc rotor, the egg-shaped shell rotor could withstand high speed and high torque while maintaining precision balance and low vibration.

Several NRO programs have used this technology, known as “D-struts,” to isolate payloads from a variety of disturbance sources. The innovation of the CMGs integrated the best of previous capabilities to develop larger, more agile satellites with improved pointing performance and longer mission life. The CMGs increased collection capacity by multiple factors and spacecraft lifetimes from months to decades.

Mr. Davis retired as a Senior Fellow and Chief Systems Engineer for Honeywell’s Space Systems Division in Glendale Arizona. He holds a Bachelor of Science and Master of Science in Mechanical Engineering from Texas Tech University. He published some 32 technical papers and is nationally known as a leader in the vibration control community.

### Pioneers of National Reconnaissance

**2015**
- L. Porter Davis

**2014**
- Thomas C. “Chris” Fitzsimmons
- John. R Stavlo

**2013**
- William G. Montgomery
- Donald N. Simkins, Ph.D.

**2012**
- Robert P. O’Donnell, Ph.D.

**2011**
- Thomas A. Brackey
- Michael N. Parker, Ph.D.
- John W. Shipley, Ph.D.
- Richard C. Van Wagoner

**2010**
- Robert H. Dumais
- Michael F. Maguire

**2009**
- James P. Campbell, Ph.D.
- Lacy C. Cook
- Paul G. Kaminski

**2008**
- Raymond E. Anderson, Col, USAF (Ret)
- Howard G. Brotherton
- Hilliard W. Paige, Sr.

**2007**
- Paul G. Kaminski
- Sun Yet Wong

**2006**
- Ingrid M. Clausen
- Fred V. Hellrich
- David L. Klinger, Ph.D.
- Jane A. Wood

**2005**
- Robert E. Eisenhauer
- Roger C. Marsh
- Edward A. Miller, Ph.D.
- Wayne L. Proffitt

**2004**
- M. Sam Araki
- Harvey Cohen, Lt Col, USAF (Ret)
- Robert G. Kaeffer
- James W. McAnally

**2003**
- Carl L. Ferdensi, Jr.
- David Raspet, Col, USAF (Ret)
- James W. Stoner, Ph.D.
- Charles C. Tevis

**2002**
- Vance D. Coffman, Ph.D.
- Lee M. Hammarstrom
- Robert L. Paulson, Col, USAF (Ret)

**2001**
- Donald L. Cromer, Lt Gen, USAF (Ret)
- A.J. (Tony) Iorillo
- Vincent S. Rose
- John Walton

**2000**
- James G. Baker, Ph.D.
- C. Lee Battle, Jr., Col, USAF (Ret)
- John T. Bennett
- John W. Browning, Col, USAF (Ret)
- Jon H. Bryson, Col, USAF (Ret)
- A. Roy Burks
- Frank S. Buzard, Col, USAF (Ret)
- Cornelius W. “Connie” Chambers
- John O. Copley, Col, USAF (Ret)
- Robert H. Crotser
- John J. Crowley

**2005**
- James C. de Broekert
- Gary S. Geyer, Col, USAF (Ret)
- Thomas O. Haig, Col, USAF (Ret)
- Frederick H. Kaufman
- Robert J. Kohler
- Ellis E. Lapin
- Lloyd K. Lauderdale, Ph.D.
- Richard S. Lehman, Col, USAF (Ret)
- Walter J. Levison
- Howard O. Lorenzen
- Frank J. Madden
- James T. Mannen, Col, USAF (Ret)
- Paul W. Mayhew, Ph.D.
- Reid D. Mayo
- James E. Morgan
- Mark N. Morton
- Aklen V. Munson, Jr.
- Charles L. Murphy, Col, USAF (Ret)
- Frederic C.E. “Fritz” Oder, Col, USAF (Ret)
- John Parangosky
- Julius P. “Val” Peline, Ph.D.
- Robert M. Powell
- Edward H. Reese
- Osmond J. “Ozzie” Ritland, Major General, USAF (Ret)
- Lee W. Roberts, Col, USAF (Ret)
- Charles R. “Charlie” Roth
- Robert W. “Rob” Roy, Col, USAF (Ret)
- Charles P. Spoelhof
- Forrest H. Stieg
- Marvin S. Stone, Ph.D.
- Don F. Tang
- Albert D. “Bud” Wheelon, Ph.D.
- Peter G. Wilhelm
- Roy H. Worthington, Col, USAF (Ret)
- Robert W. Yundt, Col, USAF (Ret)
Pioneer Hall
National Reconnaissance Office
Chantilly, Virginia