

SPACE OPTICS: A CONVERSATION WITH ME

Jim Breckinridge

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What is optical system engineering? What is space optical engineering and how does it differ from ground-based optics? Other topics will be: the AAReST project and exoplanet characterization. There will be time for questions on other topics such as careers in optics, my work in industry, government labs & agencies and academia and professional society service.

Short biography for Dr. James Breckinridge

Dr Breckinridge earned his BSc degree in Physics from Case Institute of Technology, Cleveland, OH in 1961 and his MSc and PhD in Optical Sciences from the College of Optical Sciences at the University of Arizona, Tucson AZ in 1976 where he was a student of professors R. Shack, and J. Stoner. His dissertation was the development of the rotational shear spatial interferometer with applications to problems in the astronomical sciences. After his BSc degree Dr. Breckinridge was a research assistant at Lick Observatory for 3 years collaborating with G. E. Kron on six color photometric standards and image tubes. He then worked 2 years designing, building and evaluating electron optics image intensifier and image converter tubes at Rauland Corporation in Chicago, IL. Dr. Breckinridge continued his astronomy career in the Solar Division at Kitt Peak National Observatory, Tucson for 12 years before moving to the NASA Jet Propulsion Laboratory in Pasadena, CA. in 1976. At JPL he was the instrument scientist for the ATMOS and the founding manager of the JPL Optics Section, which is responsible for the design, construction, and testing of most of the space-flight optical systems built by JPL. In 1999 Dr. Breckinridge accepted an assignment to the National Science Foundation (NSF) in Washington DC to manage the Advanced Technologies and Instruments program for the Astronomical Sciences Division. He returned to JPL in 2003 to become the chief technologist for the NASA exo-planet program. In Jan 2010 he retired from JPL after 33 years of service.

Dr. Breckinridge taught the Optical Engineering class in the CALTECH Applied Physics and Aeronautics departments from 1982 to current. Dr. Breckinridge has over 95 publications in astronomy, physical optics, spectroscopy, and image science. He was elected President of the SPIE and to the governing board of the Council of Scientific Society Presidents. He is an elected fellow of Optical Society of America, the Royal Astronomical Society of London and the SPIE. Dr. Breckinridge is a member of the American Astronomical Society and the International Astronomical Union. He is the recipient of 8 NASA achievement awards and holds 4 patents.

Dr. Breckinridge currently holds an academic appointment at Caltech as a visiting associate in Aeronautics and is an Adjunct Professor of Optics at the College of Optical Sciences at the University of Arizona, Tucson. He teaches Ae 159 – Space Optical System Engineering the third quarter of the even numbered years. Dr. Breckinridge's current research interests are optical systems for the characterization of exoplanets and topics in advanced optical system engineering and technology. He is a consultant in space optics systems and technology.



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