

Michael T. McGrath

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Education

B.S. EDEE, University of Colorado, 1974

Work History

Mechanical Engineer, LASP, 1973-1981; Group Manager, Section Head, and Project Director, High Altitude Observatory, NCAR, 1981-1991; LASP Mechanical Engineering Manager (1991-1999) and Engineering Director 1999 to Present

Bibliographical Sketch

Michael T. McGrath is the Engineering Director at the Laboratory for Atmospheric and Space Physics at the University of Colorado-Boulder. His career focus on space instrument development and project management in support of scientific research began as a LASP student, with mechanical engineering roles on LASP rocket programs, NASA's Voyager PPS, and then as lead mechanical engineer on NASA's Pioneer Venus UVS instrument. He supported LASP's Solar Mesosphere Explorer Observatory Module development, spectrometer designs, and test facility development. Next, as the Instrumentation Group Manager at NCAR's High Altitude Observatory he was responsible for managing ground-based solar instrumentation development at the NCAR Mesa Laboratory and in support of HAO's Mauna Loa Solar Observatory in Hawaii. He was a team member of HAO's 1983 and 1988 solar eclipse expeditions to Indonesia and to the Philippines. While at NCAR he was the interim program manager for NASA's ISPM CXX instrument, managed the NASA SPARTAN 201 White Light Coronagraph development, and the Solar Maximum Repair Mission WLC main electronics box repair – the first of its kind hardware replacement performed in space. He was Project Manager on NCAR's successful HIRRLS proposal that catalyzed the US/UK teaming arrangement between NCAR, the British National Space Center, and Oxford University on NASA's HIRDLS instrument. He returned to LASP as Mechanical Engineering Manager for the CASSINI UVIS instrument and later the Student Nitric Oxide Explorer (SNOE) spacecraft. Most recently he managed NASA's Aeronomy of Ice in the Mesosphere (AIM) Small Explorer (SMEX) Mission. He holds a Professor Adjunct appointment in CU's Aerospace Engineering Science department.

Teaching Activity Summary

ASEN 4148/5148 *Spacecraft Design* (from 1996)
GEEN1400 *Introduction to Engineering Projects* (from 1999).

Conferences, Presentations, and Publications

McGrath, M.T. *Design Experiences in the Repair of the Solar Maximum Coronagraph/Polarimeter*, Satellite Services Workshop II Proceedings -- Vol 2, NASA/Johnson Space Center, Nov. 6, 1985.

S.C. Solomon, McGrath, M. et al, *The Student Nitric Oxide Explorer*, Proc. SPIE, 2810, 121, 1996.

M. McGrath, *Teaching Engineering in the Context of Spaceflight Instrumentation Design and Development*, AGU, San Francisco, Dec. 2005

McGrath, M., *A Short Course in Spacecraft Systems Design*, Istanbul Technical University, Ayazaga Campus, Maslak, Istanbul, Turkey, May 15-18, 2006

M. McGrath, *Bridging the Gap to the Engineer of 2020*, ASEE Proceedings, Philadelphia, PA, June 2006

Z. Sternovsky, M. McGrath et al, *Development of Space Missions and Instruments through Education*, NSF Small Satellite Conference, George Mason University, Washington D.C, May 2007

M. McGrath, *Evolution of a Class in Spacecraft Design: Experiences Gained over a Decade of Teaching*, ASEE Proceedings, Honolulu, HI, June 2007

McGrath, M., *SMD Student Collaborations –Program Management Oversight for Student Dust Counter (SDC) Instrument on New Horizons to Pluto*, National Council of Space Grant Directors, Washington, D.C., March, 2009

M. McGrath, *The Aeronomy of Ice in the Mesosphere Mission*, IEEE Aerospace Conference, Big Sky, MT, March 2009, ISBN 978-1-4244-2621-8

M. McGrath, *Earned Value Management: Transitioning from Discouragement to a Glimmer of Hope*, IEEE Aerospace Conference, Big Sky, MT, March 2012

M. McGrath, *Changing the Paradigm: A New Approach to Satellite Design*, 63rd International Astronautical Congress, 13th United Nations/IAA Workshop on Small Satellite Programmes at the Service of Developing Countries, Naples, Italy, October, 2012