



Michael S. Jacoby



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Career:

After graduating from the University of California at Santa Barbara with a degree in Mechanical Engineering in 1983, I accepted a position at the Naval Civil Engineering Laboratory (NCEL) in Port Hueneme, California, while pursuing graduate studies in structural engineering and fluid mechanics. While at NCEL, I worked on offshore pipeline systems, building aerodynamics, and advanced concepts for the U.S. Navy and Marine Corp, and got my first taste of advanced finite element analysis of complex structures.

In 1987, I accepted a position in the Missile Systems Division of Lockheed Missiles & Space Co. in Sunnyvale, California, where I worked as a stress analyst until 1989 when I transferred to the Lockheed Palo Alto Research Laboratories (now the Lockheed Martin Advanced Technology Center, or ATC) and joined the Structures Laboratory. While there, I worked primarily on thin-walled, optimized metallic and composite shell structures for spaceborne cryogenic systems. It was at LPARL that I came to be influenced by Dr. David Bushnell, Dr. Charles Rankin, Mr. Phil Underwood, Mr. Marc Regelbrugge, Mr. Jörgen Skogh, and others, and became a major user and tester of BOSOR4, PANDA, PANDA2, STAGS, and other structural analysis tools developed by the Structures Laboratory.

In 1996, I transferred to the Lockheed Martin Skunk Works in Palmdale, California to work on the X-33 experimental launch vehicle, primarily on extremely hot (the vehicle Thermal Protection System) and extremely cold (the Composite LH2 tanks, which served as the primary structure for the vehicle) shell structures. While at the Skunk Works, I further extended my knowledge of complex and advanced composite shell structures.

In 2000, after a brief employment with the Structural Dynamics Research Corporation as a Program Manager, I returned to technical work and accepted a position with Santa Barbara Remote Sensing (SBRS), part of Raytheon Corp., in Goleta, California. While at SBRS, my work was centered on the design, development, and testing of optical-mechanical systems and sensors for weather sensing, earth science and atmospheric research, and planetary exploration.

In 2006, I rejoined Lockheed Martin at the ATC, as a Senior Staff Engineer in the Flight Sciences Department. In my current tenure at the ATC, I have picked up where I left off with my work on thin, optimized shell structures, in addition to taking a leading role in the design, development, construction, and testing of advanced opto-mechanical systems primarily in support of the James Webb Space Telescope.

Throughout my career, I have been an avid user, tester, and developer of the STAGS computer code for the advanced analysis of shell structures.

Selected Publications:

Michael Jacoby, David Bushnell, "Verification of the DEWAR code for optimum design of dewar support Systems", AIAA 33rd Structures, Structural Dynamics and Materials Conference, DOI: 10.2514/6.1992-2562, 1992

Michael Jacoby, Ted Nast, "A non-linear, coupled fluid-structural dynamics code for cryogenic refrigerators based on the Oxford split-Stirling cycle design", AIAA 35th Structures, Structural Dynamics and Materials Conference, DOI: 10.2514/6.1994-1313, 1994

Milutin Pavlov, James Bell, Todd Hurt, Michael Jacoby, Belinda Shreckengost, Russ Ravela, Mark Schwarz, "Telescope performance near local midnight for the Japanese Advanced Meteorological Imager (JAMI)", SPIE Proceedings Vol. 5658, Applications with Weather Satellites II, pp. 103-115, DOI: 10.1117/12.583099, 2005

Alison Nordt, Michael Jacoby, Brent Biggs, Todd Kvamme, Ted Cahoon, "NIRCam fold mirror and mount designs", SPIE Proceedings Vol. 6692, Cryogenic Optical Systems and Instruments XII, DOI: 10.1117/12.742101, 2007

E. Todd Kvamme, Michael Jacoby, Liz Osborne, "Opto-mechanical test results for the Near Infra-red Camera on the James Webb Space Telescope", SPIE Proceedings Vol. 7010, Space Telescopes and Instrumentation 2008: Optical, Infrared, and Millimeter, DOI: 10.1117/12.784455, 2008

Michael Jacoby, Alison Nordt, Bryan Hurlbut, "Cryogenic adhesive testing for the NIRCam optical bench assembly", SPIE Proceedings Vol. 7425, Optical Materials and Structures Technologies IV, DOI: 10.1117/12.828262, 2009

Michael Jacoby, Alison Nordt, "NIRCam optical bench assembly qualification vibration testing", SPIE Proceedings Vol. 7425, Optical Materials and Structures Technologies IV, DOI: 10.1117/12.828256, 2009

Bear Witherspoon, Lynn Huff, Michael Jacoby, Paul Mammini, "Results of environmental testing of the focus and alignment mechanism on the Near Infra-red Camera on the James Webb Space Telescope", SPIE Proceedings Vol. 7439, Astronomical and Space Optical Systems, DOI: 10.1117/826562, 2009

Alison Nordt, Michael Jacoby, "Cold alignment prediction of the NIRCam instrument components", SPIE Proceedings Vol. 7439, Astronomical and Space Optical Systems, DOI: 10.1117/12.827951, 2009

Bela Privari, Craig Hom, Michael Jacoby, "NIRCam filter wheel optic mount design", SPIE Proceedings Vol. 7439, Astronomical and Space Optical Systems, DOI: 10.1117/12.826533, 2009

Paul Mammini, Howard Holmes, Michael Jacoby, E. Todd Kvamme, "Mounting small optics for cryogenic space missions", SPIE Proceedings Vol. 8125, Optomechanics 2011: Innovations and Solutions, DOI: 10.1117/12.896449, 2011

Paul Mammini, Howard Holmes, Lynn Huff, Michael Jacoby, Frank Lopez, "JWST NIRCam flight mirror assemblies", SPIE Proceedings Vol. 8150, Cryogenic Optical Systems and Instruments XIII, DOI: 10.1117/12.896470, 2011

Danielle Little, Michael Jacoby, Edwin Casco, "Design, build, and test of the NIRCam focal plane array housing", SPIE Proceedings Vol. 8150, Cryogenic Optical Systems and Instruments XIII, DOI: 10.1117/12.896488, 2011

E. Todd Kvamme, Michael Jacoby, Troy Hix, "Flight build of the collimator and shortwave camera on NIRCam", SPIE Proceedings Vol. 8150, Cryogenic Optical Systems and Instruments XIII, DOI: 10.1117/12.8964459, 2011

Charles Clark, Michael Jacoby, "Redesign and test of cryogenic mechanism for improved stiffness", SPIE Proceedings Vol. 8150, Cryogenic Optical Systems and Instruments XIII, DOI: 10.1117/12.896642, 2011

David Bushnell, Michael S. Jacoby and Charles C. Rankin, "Optimization of Propellant Tanks Supported by Optimized Laminated Composite Tubular Struts", AIAA Paper 2013-1479, 54th AIAA Structures, Structural Dynamics and Materials Meeting, Boston, Massachusetts, April 8-12, 2013.

David Bushnell, Michael S. Jacoby and Charles C. Rankin, "Optimization of Propellant Tanks Supported by One or Two Optimized Laminated Composite Skirts", AIAA Paper 2013-1480, 54th AIAA Structures, Structural Dynamics and Materials Meeting, Boston, Massachusetts, April 8-12, 2013.

David Bushnell and Michael S. Jacoby, "Minimum weight design of an axially compressed isotropic prismatic panel consisting of a series of cylindrical segments and verification by STAGS", AIAA Paper 2014-0844, 55th AIAA Structures, Structural Dynamics and Materials Meeting held at the 2014 SCITECH, National Harbor, Maryland, January 13-17, 2014.