

Keith Doyle

The University of Vermont
BSAD-Business Analytics
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Education

MBA, Massachusetts Institute of Technology, 2019.
Major: Business

Ph D, University of Arizona, 1993.
Major: Engineering Mechanics
Supporting Areas of Emphasis: Optical Sciences
Dissertation Title: An Optimization Method for the Design of Structures for Maximum Fundamental Frequency

MS, Northeastern University, 1991.
Major: Mechanical Engineering

BS, Swarthmore College, 1988.
Major: Civil Engineering

RESEARCH

Research Publications

Books

Doyle, K. (2012). *Integrated Optomechanical Analysis, 2nd Edition*.

Book Chapters

Doyle, K. (2017). In Anees Ahamd (Ed.), *Handbook of Optomechanical Engineering*, (2nd ed.). Boca Raton, Florida: CRC Press.

Journal Articles

Doyle, K. (2003). "Getting Together" Design Talk Article.

Presentations Given

Doyle, K. B. (Author & Presenter), Stoeckel, G. P. (Author & Presenter), Optomechanical Engineering 2017, "LLIMAS: Revolutionizing Integrated Modeling and Analysis at MIT Lincoln Laboratory," SPIE, San Diego, California, United States. (August 2017).

Stoeckel, G. P. (Author & Presenter), Doyle, K. B. (Author & Presenter), Optomechanical Engineering 2017, "Using Multidisciplinary Optimization For CCD Shim Design in the Transiting Exoplanet Survey Satellite," SPIE, San Diego, California, United States. (August 2017).

Doyle, K., Stoeckel, G.P., SPIE, "LLIMAS: Revolutionizing Integrated Modeling and Analysis at MIT Lincoln Laboratory," San Diego, California, United States. (August 2017).

Doyle, K., Stoeckel, G.P., SPIE, "Using Multidisciplinary Optimization For CCD Shim Design in the Transiting Exoplanet Survey Satellite," San Diego, California, United States. (August 2017).

Doyle, K. B. (Author & Presenter), Bury, M. (Author & Presenter), Sebastian, T. (Author & Presenter), Cusher, A. (Author & Presenter), Genberg, V. L. (Author & Presenter), Aero-mechanical and Aero-Optical Effects for Airborne Laser Systems Workshop, "Integrated Modeling and Analysis for Airborne Optical Systems at MIT Lincoln Laboratory," Air Force Research Laboratory, Albuquerque, New Mexico, United States. (March 2017).

Doyle, K., Aero-mechanical and Aero-Optical Effects for Airborne Laser Systems Workshop, "Integrated Modeling and Analysis for Airborne Optical Systems at MIT Lincoln Laboratory," , " Air Force Research Laboratory (AFRL), Albuquerque, New Mexico, United States. (March 2017).

Stoeckel, G. P. (Author & Presenter), Doyle, K. B. (Author & Presenter), Optics + Photonics 2015, "Using Integrated Optomechanical Modeling to Assess Performance of the Transiting Exoplanet Survey Satellite," SPIE, San Diego, California, United States. (August 2015).

Ulmer, T. (Author & Presenter), Nowak, G. (Author & Presenter), Doyle, K. (Author & Presenter), MILCOM 2014, "A window-based lasercom terminal," IEEE, United States. (October 2014).

Weatherwax, M. S. (Author & Presenter), Doyle, K. B. (Author & Presenter), Optical Engineering + Applications / SPIE 9192, "Vibration analysis and testing for the LLST optical module," SPIE, San Diego, California, United States. (August 2014).

Hwang, J. H. (Author & Presenter), Doyle, K. B. (Author & Presenter), Languirand, B. (Author & Presenter), 28th Aerospace Testing Seminar, "Pyrotechnic Shock Test Capabilities at MIT Lincoln Laboratory," Aerospace Corporation, El Segundo, California, United States. (April 2014).

Genberg, V. L. (Author & Presenter), Doyle, K. B. (Author & Presenter), Bury, M. (Author & Presenter), Cusher, A. (Author & Presenter), Sebastian, T. (Author & Presenter), SPIE 8840, "Computational methods to compute wavefront error due to aero-optic effects," SPIE, San Diego, California, United States. (August 2013).

Stoeckel, G. (Author & Presenter), Doyle, K. B. (Author & Presenter), SPIE Vol. OP307, "Coupling commercial software for STOP analysis at MIT Lincoln Laboratory," SPIE, San Diego, California, United States. (August 2013).

Bury, M. (Author & Presenter), Doyle, K. B. (Author & Presenter), Cusher, A. (Author & Presenter), Sebastian, T. (Author & Presenter), Genberg, V. L. (Author & Presenter), 51st AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition, "An Integrated method for aero-optical analysis," AIAA, Grapevine, Texas, United States. (January 2013).

Doyle, K. B. (Author & Presenter), Brenner, M. (Author & Presenter), Antebi, J. (Author & Presenter), Kan, F. W. (Author & Presenter), Valentine, D. P. (Author & Presenter), Optomechanics 2011: Innovations and Solutions, "RF-mechanical performance of the Haystack radio telescope," SPIE, San Diego, California, United States. (August 2011).

Genberg, V. L. (Author & Presenter), Doyle, K. B. (Author & Presenter), Michels, G. L. (Author & Presenter), Optical Modeling and Performance Predictions V, "Integrated modeling of jitter MTF due to random loads," SPIE, San Diego, California, United States. (August 25, 2011).

Nevin, K. E. (Author & Presenter), Doyle, K. B. (Author & Presenter), Pillsbury, A. D. (Author & Presenter), Optical Modeling and Performance Predictions V, "Optomechanical Design and Analysis of the LLCD space terminal telescope," SPIE, San Diego, California, United States. (August 25, 2011).

Doyle, K. B. (Author & Presenter), Optical Modeling and Performance Predictions IV, "Antenna performance predictions on a radio telescope subject to thermal perturbations," SPIE, San Diego, California, United States. (August 2009).

Michels, G. J. (Author & Presenter), Genberg, V. L. (Author & Presenter), Doyle, K. B. (Author & Presenter), ANSYS Users Meeting, "Integrating ANSYS Mechanical Performance with Optical Performance Analysis Using SigFit," ANSYS, Munich, Germany. (2008).

Scozzafava, J. J. (Author & Presenter), Boroson, D. M. (Author & Presenter), Burnside, J. W. (Author & Presenter), Doyle, K. B. (Author & Presenter), DeVoe, C. E. (Author & Presenter), Free-Space Laser Communications VII, "Design of a very small inertially-stabilized optical space terminal," SPIE, San Diego, California, United States. (August 2007).

Doyle, K. B. (Author & Presenter), New Developments in Optomechanics, "Design optimization of a dual mode multi-axis passive isolation configuration for MLCD," SPIE, San Diego, California, United States. (August 2007).

Doyle, K. B. (Author & Presenter), New Developments in Optomechanics, "Structural LOS jitter analysis for MLCD," SPIE, San Diego, California, United States. (August 2007).

Genberg, V. L. (Author & Presenter), Michels, G. J. (Author & Presenter), Doyle, K. B. (Author & Presenter), Bisson, G. (Author & Presenter), Optical Fabrication and Testing 2006, "A general tool for the design and analysis of stressed optic polishing," OSA, Rochester, New York, United States. (October 2006).

Genberg, V. L. (Author & Presenter), Bisson, G. (Author & Presenter), Michels, G. J. (Author & Presenter), Doyle, K. B. (Author & Presenter), VPD Conference, "External superelements in MSC.NASTRAN, a super tool for segmented optics," MSC Software, Huntington Beach, California, United States. (July 17, 2006).

Michels, G. J. (Author & Presenter), Genberg, V. L. (Author & Presenter), Doyle, K. B. (Author & Presenter), Bisson, G. R. (Author & Presenter), Optical Modeling and Performance Predictions II, "Design optimization of system level adaptive optical performance," SPIE, San Diego, California, United States. (August 2005).

Doyle, K. B. (Author & Presenter), Genberg, V. L. (Author & Presenter), Michels, G. J. (Author & Presenter), Bisson, G. R. (Author & Presenter), Optical Modeling and Performance Predictions II, "Optical modeling of finite element surface displacements using commercial software," SPIE, San Diego, California, United States. (August 2005).

Michels, G. J. (Author & Presenter), Genberg, V. L. (Author & Presenter), Doyle, K. B. (Author & Presenter), Bisson, G. R. (Author & Presenter), Optomechanics 2005, "Design optimization of actuator layouts for adaptive optics using a genetic algorithm," SPIE, San Diego, California, United States. (August 2005).

Genberg, V. L. (Author & Presenter), Doyle, K. B. (Author & Presenter), Michels, G. J. (Author & Presenter), MSC 2004 VPD Conference, "Opto-mechanical I/F for MSC.NASTRAN," MSC Software, Huntington Beach, California, United States. (October 2004).

- Genberg, V. L. (Author & Presenter), Doyle, K. B. (Author & Presenter), Michels, G. J. (Author & Presenter), ANSYS Users Conference, "Opto-mechanical I/F for ANSYS," ANSYS, Canonsburg, Pennsylvania, United States. (May 2004).
- Genberg, V. L. (Author & Presenter), Doyle, K. B. (Author & Presenter), Michels, G. J. (Author & Presenter), FEMCI Workshop, "Optomechanical Design and Analysis of Adaptive Optical Systems using FEA and Optical Design Software," FEMCI, United States. (2003).
- Genberg, V. L. (Author & Presenter), Michels, G. J. (Author & Presenter), Doyle, K. B. (Author & Presenter), Optifab 2003, "Combining optical metrology with structural analysis," SPIE, Rochester, New York, United States. (2003).
- Doyle, K. B. (Author & Presenter), Genberg, V. L. (Author & Presenter), Michels, G. J. (Author & Presenter), Optomechanics 2003, "Design strength of optical glass," SPIE, San Diego, California, United States. (August 2003).
- Doyle, K. B. (Author & Presenter), Genberg, V. L. (Author & Presenter), Michels, G. J. (Author & Presenter), Optomechanics 2003, "Integrated optomechanical analysis of adaptive optical systems," SPIE, San Diego, California, United States. (August 2003).
- Genberg, V. L. (Author & Presenter), Doyle, K. B. (Author & Presenter), Michels, G. J. (Author & Presenter), Optomechanics 2003, "Optical performance as a function of dynamic mechanical loading," SPIE, San Diego, California, United States. (August 2003).
- Doyle, K. B. (Author & Presenter), Genberg, V. L. (Author & Presenter), Michels, G. J. (Author & Presenter), SPIE Vol. 4769, "Numerical methods for computing optical errors due to stress birefringence," SPIE, Seattle, Washington, United States. (2002).
- Doyle, K. B. (Author & Presenter), Michels, G. J. (Author & Presenter), Genberg, V. L. (Author & Presenter), Optomechanical Design and Engineering 2002, "Athermal Design of Nearly Incompressible Bonds," SPIE, Seattle, Washington, United States. (July 2002).
- Michels, G. J. (Author & Presenter), Genberg, V. L. (Author & Presenter), Doyle, K. B. (Author & Presenter), Optomechanical Design and Engineering 2002, "Finite Element Modeling of Bonds," SPIE, Seattle, Washington, United States. (July 2002).
- Genberg, V. L. (Author & Presenter), Michels, G. J. (Author & Presenter), Doyle, K. B. (Author & Presenter), Optomechanical Design and Engineering 2002, "Orthogonality of Zernike Polynomials," SPIE, Seattle, Washington, United States. (July 2002).
- Genberg, V. L. (Author & Presenter), Michels, G. J. (Author & Presenter), Doyle, K. B. (Author & Presenter), SPIE Vol. 4769, "Making Mechanical FEA Results Useful in Optical Design," SPIE, Seattle, Washington, United States. (July 2002).
- Doyle, K. B. (Author & Presenter), Hoffman, J. M. (Author & Presenter), Genberg, V. L. (Author & Presenter), Michels, G. J. (Author & Presenter), International Optical Design Conference 2002, "Stress Birefringence Modeling for Lens Design and Photonics," SPIE, Tucson, Arizona, United States. (June 2002).
- Doyle, K. B. (Author & Presenter), Hoffman, J. M. (Author & Presenter), Optomechanical Engineering 2001, "Athermal Design and Analysis for WDM Applications," SPIE, San Diego, California, United States. (2001).
- Kahan, M. A. (Author & Presenter), Podgorski, W. A. (Author & Presenter), Tice, N. L. (Author & Presenter), Doyle, K. B. (Author & Presenter), Optomechanical Engineering 2000, "ACIS

- Door Failure Investigation: Technical Aspects and Mitigation Procedures," SPIE, Boston, Massachusetts, United States. (2000).
- Doyle, K. B. (Author & Presenter), Bell, W. (Author & Presenter), SPIE Vol. 4093, "Thermo-Elastic Wavefront and Polarization Error Analysis of a Telecommunication Optical Circulator," SPIE, San Diego, California, United States. (2000).
- Haldeman, G. S. (Author & Presenter), Temkin, R. J. (Author & Presenter), Doyle, K. B. (Author & Presenter), 24th International Conference on Infrared and Millimeter Waves, "Enhanced Face-Cooled Gyrotron," Monterey, California, United States. (September 1999).
- Doyle, K. B. (Author & Presenter), Forman, S. E. (Author & Presenter), Optomechanical Design and Precision Instruments, "Using Finite Element Analysis and Fractography to Resolve a Flex Pivot Failure Problem," SPIE, San Diego, California, United States. (1997).
- Doyle, K. B. (Author & Presenter), Cerrati, V. J. (Author & Presenter), Forman, S. E. (Author & Presenter), Sultana, J. A. (Author & Presenter), Optomechanical and Precision Instrument Design, "Optimal Structural Design of the Airborne Infrared Imager," SPIE, San Diego, California, United States. (July 10, 1995).
- Doyle, K. B. (Author & Presenter), SPIE Vol. 1998, "Optimal Optical Support Structures Based on Strength and Stiffness," SPIE, San Diego, California, United States. (1993).
- Doyle, K. B. (Author & Presenter), Vukobratovich, D. (Author & Presenter), Design of Optical Instruments, "Design of a Modified Serrurier Truss for an Optical Interferometer," SPIE, Orlando, Florida, United States. (April 22, 1992).

TEACHING

Teaching Experience

The University of Vermont

- BUS 2130, Decision Analysis, 1 course.
- BUS 3360, Integrated Product Dev, 2 courses.

SERVICE

Professional Service

- Committee Chair, SPIE Conference: Optomechanical Engineering. (2019 - Present).
- Committee Member, SPIE Fellow and Technical Achievement Award Selection Committee. (2017 - Present).
- Reviewer, Ad Hoc Reviewer, Optical Engineering journal. (2014 - Present).
- Committee Member, SPIE Program Committee: Optical Modeling and Performance Predictions. (2001 - Present).

