



Lambertus Hesselink

Professor of Electrical Engineering and, by courtesy of Applied Physics

CONTACT INFORMATION

- **Administrative Contact**

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Bio

BIO

Hesselink's research encompasses nano-photonics, ultra high density optical data storage, nonlinear optics, optical super-resolution, materials science, three-dimensional image processing and graphics, and Internet technologies.

ACADEMIC APPOINTMENTS

- Professor, Electrical Engineering
- Professor (By courtesy), Applied Physics
- Member, Bio-X
- Member, Wu Tsai Neurosciences Institute

ADMINISTRATIVE APPOINTMENTS

- Founder and Chairman of the Secure Storage Association, Warner Brothers, Fox, Western Digital, Sandisk, (2007-2012)
- Member of the Board, Co-founder, MultiDigit Corp., (2002-2003)
- Co-founder, Chairman, Senvid, Inc, (1999-2007)
- Founder, CTO, Chairman, Siros Technologies, Inc., (1997-2001)
- Elected Member of the Scientific Advisory Board, US Air Force, (1995-1998)
- Principal Investigator for the development of Digital Holographic Data Storage, DARPA, (1994-2000)
- Legal technology expert consultant, Israeli Supreme Court, (1983- present)

HONORS AND AWARDS

- Fellow, National Academy of Inventors (2022)
- Fellow, Royal Dutch Academy of Arts and Sciences (1996)
- Fellow, Society of Photo Instrumentation Engineers (2003-2005)
- Fellow, Optical Society of America (Optica) (1990)
- 1992 25 year Test of Time Award, IEEE (2017)

- Elected Member of the Scientific Advisory Board, US Air Force (1995-1998)
- Progressive Architecture Award for the Astronaut Memorial, . (1989)
- Invited Member of Image Processing Ad Hoc Committee to solve the Hubble Space Telescope problem, NASA (1990)
- Best Award, for pioneering contributions to holographic data storage, . (2007)
- Member of the design team for the Astronaut Memorial in Orlando, Florida, . (1988)
- National Storage Industry Leadership Award, . (1999)
- National Instruments Prize for Innovations in Education - the first Internet controlled lab, . (1999)
- Director's Award for Significant Technical Achievement (First Fully Automated HDSS), . (1994)
- Best Paper Award from the IEEE Computer Graphics and Applications Society, . (1994)
- Selected by the Secretary of the Airforce to be a member of the Air War College, . (1994)
- Best conference paper for Visualization, . (1994)
- Best Paper for the IEEE Visualization '91 Conference Award, . (1992)
- Best Paper for the IEEE Visualization '90 Conference, . (1990)
- Outstanding Paper for 1991 Award" for the Computer Society of the IEEE, . (1992)
- NSF selection as being in top 1% of all US inventors, with over 100 patents in US and worldwide, . (2013)
- Co-recipient of the Ittek award for the paper Holographic Reciprocity Law Failure, . (1985)
- Triple star, *** Highest Teaching Rating at Caltech, . (1979,1980)
- The Stheeman Prize for best academic performance, Twente Institute of Technology, . (1970)
- Engineer of the Year 1982, AIAA Northern California chapter, . (1983)
- Fulbright Scholar, recipient of IIE award and Dutch Government Fellowship award for studies abroad, . (1971-1974)
- Josephine de Karman Fellowship, . (1974-1975)
- Who's Who in Executive and Professionals, . (2000-2002)
- Who's Who Registry of Business Leaders, . (1994-1995)
- Who's Who in Science and Engineering, . (1991)
- Who's Who in the West, . (1989)
- America's Registry of Outstanding Professionals, . (2003-2004)
- International Directory of Distinguished Leadership, . (1989)
- Who'sWho in America, Who'sWho in Science and Engineering, . (2004-2005)
- NSF selection as being in top 1% of all US inventors, with over 100 patents in US and worldwide, . (2012)
- American Men and Women of Science, . (1989)
- Who is Who in America, Who is Who in the world, Who is Who business leaders, and related., . (2013)
- Five Thousand Personalities of the World, . (1988)
- Who's Who in Optical Science and Engineering, . (1985)
- Who's Who in California, . (1986)
- Who'sWho in the West, in Finance and Business, in American Education, in Executives & Professionals, . (2005)
- Who's Who in the West, . (1987)
- Personalities of the Americas, . (1987)
- International Leaders of Achievement award, . (1988)
- Men of Achievement, . (1988)

- Who's Who of Emerging Leaders in America, . (1988)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Fellow, SPIE
- Fellow, Optical Society of America
- Member, Royal Dutch Academy of Arts and Sciences
- Member, American Institute for Aeronautics and Astronautics
- Member, American Physical Society
- Member, Sigma Xi
- Ambassador, University of Twente (2013)
- Board member, Yonsei University Advisory Board, Korea (2013)
- Editor, Journal of 3-D Imaging (2013)
- Expert witness, Major cases involving optical data storage and asbestos litigation (2013)
- Founding Chairman, Secure Content Storage Association (SCSA) consisting of Warner Bros, Fox, WDC, Sandisk, Samsung, LG, Seagate (2013)
- Member, OSA Leith Awards committee (2013)
- Member, Editorial Advisory Board of Optical Data Storage and Processing (2013)
- Ambassador, Twente University (2012)
- Chairman, ODS 2012 meeting in Tucson Arizona (2012)
- Co-Founder and Founding Chairman, the "Secure Content Storage Association", a LLC formed between Warner Bros, Fox, Western Digital and Sandisk to develop the next generation of content storage platform for Premium Content (Follower to BluRay technology) (2012)
- Editor, Journal of 3-D imaging (2012 - present)
- Member, OSA Awards Committee (2012 - present)
- NSF Proposal Review committee member, Expert witness in data storage and asbestos litigation (2012 - present)
- 3D Editorial Board Member, 3DMR, Korea (2011 - present)
- Advisor, Dutch Government on energy issues (2011 - present)
- Ambassador, Twente University, 2011 (2011 - present)
- Chairman, International ISOM/ODS 2011 OSA meeting, Hawaii (2011)
- Co-Founder, Secure Content Storage Association (2011)
- Distinguished member of International Advisory Board, Yonsei University, Korea (2011 - present)
- Founder and Sponsor, Leen van Wijngaarden Prize Foundation (2011 - present)
- Member, International Advisory Board, CC3DMR Korea (2011 - present)
- Chair, OSA bi-annual meeting on photorefractives, PR'07 (2007)
- Moderator and Panel Organizer, Stanford Nanophotonics Workshop (2004)
- Program Committee Member, IASTED International Conference on Communications, Internet and Information Technology (CIIT2004), St. Thomas, Virgin Islands (2004)
- Program Committee Member, 2nd IASTED International Conference on Communication and Computer Networks (CCN 2004), Cambridge, MA (2004)
- Co-organizer, OSA Topical Meeting, Optical Data Storage Conference, Vancouver, Canada. (2003)
- Conference Chair, IASTED WOC 2003, Wireless and Optical Communications Conference, July 2003, Banff, Alberta, Canada (2003)
- Meeting Organizer, CLEO Europe EQEC 2003, Symposium on Optical Storage, Munich, Germany (2003)
- Conference Chair, IASTED '00-'03 Technical Committee on Telecommunications, Banff, Canada (2002)

- Program Organizer, SPRC Annual Meeting, "Nanophotonics," Stanford Campus (2002 - 2003)
- Member of the Organizing Committee, IEEE '01, Symposium on Parallel and Large Data Visualization & Graphics, San Diego, CA (2001)
- Program Committee Chair, Photonics West '00, San Jose, CA (2000)
- Program Committee Chair, Photonics West '99, San Jose, CA (1999)
- Stanford Organizer, International Workshop on Holographic Data Storage, Nice, France (1999)
- Program Committee Chair, Photonics West '98, San Jose, CA (1998)
- Program Committee Chair, Photonics West '97, San Jose, CA (1997)
- Member of Organizing Committee, Symposium on Data Storage: 1996 Annual Meeting of the Optical Society of America, Rochester, New York (1996)
- Member of Program Committee, International Symposium on Holographic Memories (1996)
- Member of Program Committee, IEEE Visualization '96, San Francisco, CA (1996)
- Member of organizing committee, ICO XVII '96 Optics for Science and New Technology, Taejon, Korea (1996)
- Member of organizing program committee, IS&T SPIE, Symposium on Electronic Imaging and Technology-Photonics West '96, San Jose, CA (1996)
- Presiding Chair, OSA Annual Meeting, ILS, XCII Optics & Imaging Center, Rochester, NY (1996)
- Program Committee Chair, OSA Topical Meet, "Holography," Boston, MA (1996)
- Chairperson, IEEE/LEOS, Lasers and Electro-Optics Society (1995)
- Chairperson (Tutorial), CLEO/QELS '95, Baltimore, MD (1995)
- Co-Chairperson, Photonics West '95, Practical Holography IX, San Jose, CA (1995)
- Member of the Program Committee, Sixth Eurographics Workshop on Visualization in Scientific Computing, Porto Conte, Italy (1995)
- Principal Investigator, \$53M DARPA program on Holographic optical data storage, involving four Universities and five major industrial partners, including IBM, Kodak, GTE, Rockwell International and Texas Instruments. Directed a group of 136 scientists and engineers which resulted in a demonstration platform that still has the best performance of any data storage system today. (1995 - 2000)
- Member of the Scientific Advisory Board, United States Air Force reporting to the Secretary of the Airforce (1995 - 1998)
- Member of Editorial Board, IEEE Transactions on Visualization and Computer Graphics (TVCG) (1994)
- Member, Committee on Engineering in Biology and Medicine (1993)
- Member of organizing committee, "Optical Computing" in Salt Lake City, Utah (1991)
- Chairperson, Imaging, SPIE Conference, Los Angeles, CA (1990)
- Chairperson, "3-D Visualization of Scientific Data", SPIE Conference, San Diego, CA (1990)
- Member, Symposium on Electronic Imaging, Santa Clara, CA (1990)
- Member, "Visualization" Panel, "Extracting Meaning from Complex Data" Conference, SPIE/SPSE (1990)
- Organizer, NASA Scientific Visualization Workshop, Stanford University, Stanford, CA (1990)
- Organizer, NASA Scientific Visualization Workshop, Stanford University, Stanford, CA (1990)
- Member, Technical Committee of the IEEE Visualization '90, '91, '92 Annual Meetings (1990 - 1992)
- Organizer, Visualization of Scientific Data, SPIE (1989)
- Organizer, Optical Interconnections for Computers, OSA Annual Meeting, Orlando, FL (1989)
- Organizer, Experimental Techniques, APS 42nd Annual Meeting, Palo Alto, CA (1989)
- Organizer, Practical Holography, SPIE (1989 - 1992)
- Invited lecturer, Dynamic Optical Interconnects at the International School of Quantum Electronics, Erice, Italy (1988)
- Member of the local organizing committee, Annual Meeting of the Optical Society of America, Santa Clara (1988)
- Member of the design team, Astronaut Memorial in Orlando, Florida (1988 - 1990)
- Invited Visiting Professor, Tsinghua University in Beijing, China (1987)

- Member of advisory panel, National Science Foundation (1987 - 1990)
- Invited lecturer, lecture series on Digital and Optical Image Processing at the Von Karman Institute, Brussels, Belgium (1986)
- Organizer, Topical meeting on "Holography", OSA, Honolulu, HI (1986)
- Invited lecturer, Lecture series on Digital and Optical Image Processing at the Von Karman Institute, Brussels, Belgium (1984)
- Meeting organizer and co-chairman, Twenty-Sixth International SPIE Meeting in San Diego (1982)
- Presentation of short courses, Holography and digital image processing in the Netherlands, Germany, China, Israel, England, Italy (1981 - 1988)
- Consultant, Hughes Aircraft Corporation, Microelectronics Corporation, Visulux Corporation, National Science Foundation, VSL Corporation, Physical Optics Corporation, Northrup and the Air Force (1980 - 1998)

PROFESSIONAL EDUCATION

- Ph.D., Caltech , Applied Mechanics and Physics/Applied Physics (1977)
- ENG, Twente University , Applied Mechanics and Physics (1974)
- MS, Caltech , Applied Mechanics and Physics (1972)
- BS, Twente Univeristy , Applied Mechanics and Physics (1970)
- BS, Twente Univeristy , Applied Physics (1971)

PATENTS

- Hesselink, L. "United States Patent 4,171,915 Laser Interferometer Probe"
- Goodman, J. W. , Hesselink, L.. " Patent 4,674,824 System for enhancement of optical features"
- Hesselink, L., Redfield, S. R.. "United States Patent 4,927,220 System and method for photorefractive holographic recording and signal processing"
- Redfield, S. R., Hesselink, L.. "United States Patent 4,953,924 Enhanced nondestructive holographic reconstruction"
- Heanue, J. F., Bashaw, M. C., Hesselink, L.. "United States Patent 5,450,218 Method for encoding and decoding digital data in holographic storage media"
- DeVre, R., Hesselink, L.. "United States Patent 5,640,256 Dynamic multiple wavelength filter using a stratified volume holographic optical element"
- Bai, Y.S., Kachru, R., Hesselink, L., Macfarlane, R.. "United States Patent 5,665,493 Gated recording of holograms using rare-earth doped ferroelectric materials"
- Wilde, J.P., Hesselink, L.. "United States Patent 5,684,612 Method and system for maintaining and controlling the signal-to-noise ratio of holograms recorded in ferroelectric photorefractive materials"
- Bashaw, M.C., Heanue, J., Hesselink, L.. "United States Patent 5,729,364 Ion and impurity concentration optimization in photorefractive media for dynamic and fixed holography"
- Heanue, J.F., Gurkan, K., Hesselink, L.. "United States Patent 5,740,184 Decision feedback viterbi detector for page-access optical memories"
- Muthuveerappan, J., Bashaw, M., Hesselink, L.. "United States Patent 5,844,700 Spatio-angular multiplexing geometry for volume holographic storage"
- Lande, D., Heanue, J.F., Bashaw, M.C., Hesselink, L.. "United States Patent 5,850,299 Method of choosing an optimum angle between a reference beam and an object beam to record a hologram"
- Bashaw, M.C., Heanue, J. F., Hesselink, L.. "United States Patent 5,877,873 Differential video image compression in holographic media"
- Heanue, J.F. , Bashaw, M.C., Hesselink, L.. "United States Patent 5,940,514 Encrypted holographic data storage based on orthogonal phase code multiplexing"
- Hesselink, L., Heanue, J. F., Daiber, A. J.. "United States Patent 5,995,251 Apparatus for holographic data storage"
- McLeod, R.R., Sochava; S. L., Daiber, A. J., McDonald, M. E., Hesselink, L., Sander, I., Slagle, T.M.. "United States Patent 6,020,985 Multilayer reflection microhologram storage in tape media"
- Bashaw, M., Heanue, J.F., Hesselink, L.. "United States Patent 6,023,355 Coded-wavelength multiplex volume holography"
- Hesselink, L., McDonald; M. E., Heanue, J. F., Daiber, A. J.. "United States Patent 6,104,511 Reflector-based off-axis optical system for holographic storage"
- Hesselink, L., McLeod, R. R., Sochava, S. L., Phillips, W.. "United States Patent 6,212,148 Optical data storage by selective localized alteration of a format hologra"

- Sochava, S., Orlov, S., Honda, T., Cumpston, B. H., Hesselink, L.. "United States Patent 6,310,850 Method and apparatus for optical data storage and/or retrieval by selective alteration of a holographic storage medium"
- Hesselink, L., Bashaw, M. C.. "United States Patent 6,414,763 Digital holographic camera system and method having removable media"
- Hesselink, L., Rizal, D., Bjornson, E.S.. "United States Patent 6,499,054 Control and Observation of physical devices, equipment and processes by multiple users over computer networks"
- Lipson, M., Sochava, S., Hesselink, L., Cumpston, B. H., McLeod, R.R., Claude, C.D.. "United States Patent 6,512,606 Optical storage media and method for optical data storage via local changes in reflectivity of a format grating"
- Yoshinari, J., Tsukagoshi, T., Hirata, H., Hayashida, N., Honda, T., McDonald, M.E., Morelli, M.V., Daiber, A.J., Ghose, S., Hesselink, L., Nishimura, S., Sochava, S.. "United States Patent 6,540,397 Optical information storage medium"
- Amble, J. R., Hesselink, L., Honda, T., McDonald, M.E., Morelli, M.V., Daiber, A. J., Ferrier, H. A., Ghose, S., Kridl, T. A., Lipson, M., Nishimura, S., Sochava, S., Volz, L. A.. "United States Patent 6,574,174 Optical data storage system with multiple layer media"
- Thronton; R.L., Hesselink, L.. "United States Patent 6,574,257 Near-field laser and detector apparatus and method"
- Hesselink, L., McLeod, R. R., Sochava, S. L.. "United States Patent 6,614,741 Optical data storage by selective localized alteration of a format hologram in a holographic storage disk"
- Hesselink, L., Rizal, D., Beurden, J.. "United States Patent 6,732,158 VCR webification"
- Hesselink, L., Stinson, D.G., Thornton, R.L., Malmhall, R.F.. "United States Patent 6,807,131 Near field hybrid magnetic optical head system"
- Hesselink, L., Rizal, D., Bjornson, E.S.. "United States Patent 7,120,692 Access and control system for network-enabled devices"
- Hesselink, L., Cumpston, B. H., Lipson, M.. "United States Patent 7,129,006 Optical data storage system and method"
- Yin, X., Hesselink, L.. "United States Patent 7,327,445 Enhanced surface plasmon resonance sensor using Goos-Hanchen effect"
- Matteo, J.A., Hesselink, L., Yuen, Y.. "United States Patent 7,423,265 Near-field aperture having a fractal iterate shape"
- Hesselink, L., Rizal, D., Bjornson, E.S.. "United States Patent 7,467,187 Control and observation of physical devices, equipment and processes by multiple users over computer networks"
- Hesselink, L., Rizal, D., Bjornson, E.S.. "United States Patent 7,546,353 Managed peer-to-peer applications, systems and methods for distributed data access and storage"
- Hesselink, L., Rizal, D., Bjornson, E.S.. "United States Patent 7,587,467 Managed peer-to-peer applications, systems and methods for distributed data access and storage"
- Hesselink, L., Rizal, D., Bjornson, E.S.. "United States Patent 7,600,036 Access and control system for network-enabled devices"
- Hesselink, L., Rizal, D., Bjornson, E.S.. "United States Patent 7,788,404 Access and control system for network-enabled devices"
- Hesselink, L., Rizal, D., Bjornson, E.S.. "United States Patent 7,917,628 Managed peer-to-peer applications, systems and methods for distributed data access and storage"
- Hesselink, L., Rizal, D., Bjornson, E.S.. "United States Patent 7,934,251 Managed peer-to-peer applications, systems and methods for distributed data access and storage"
- Cheng Y-T, Yuen, Y., Hansen, P.C., Takashima, Y., Hesselink, L.. "United States Patent 8,196,217 Tip-enhanced resonant apertures"
- Hesselink, L., Rizal, D., Bjornson; E. S.. "United States Patent 8,341,275 Access and Control System for network-enabled devices"
- Hesselink, L., Rizal, D., van Beurden, J., Bjornson; E.S.. "United States Patent 8,352,567 VCR webification"
- Takashima, Y., Hesselink, L.. "United States Patent 8,374,068 Focusing and imaging compatible objective lenses for pixel-based and/or bit-based optical data recording and retrieval"
- Hesselink, L.. "United States Patent 8,526,798 Portable content container displaying A/V files in response to a command received from a consumer device"
- Hesselink, L., Rizal, D., Bjornson, E. S.. "United States Patent 8,661,507 Managed peer-to-peer applications, systems and methods for distributed data access and storage"
- Hesselink, L., Rizal, D., Bjornson, E. S.. "United States Patent 8,688,797 Managed peer-to-peer applications, systems and methods for distributed data access and storage"
- Hesselink, L., Rizal, D., Bjornson, E. S.. "United States Patent 8,793,374 Managed peer-to-peer applications, systems and methods for distributed data access and storage"
- Blankenbeckler, D. L. Ybarra, D., Hesselink, L.. "United States Patent 8,831,217 Digital rights management system and methods for accessing content from an intelligent storage"
- Blankenbeckler, D. L. Ybarra, D., Hesselink, L.. "United States Patent 8,831,218 Digital rights management system and methods for provisioning content to an intelligent storage"

- Hesselink, L.. "United States Patent 8,861,941 Portable content container displaying A/V files in response to a command received from a consumer device"
- Blankenbeckler, D. L. Ybarra, D., Hesselink, L.. "United States Patent 8,914,634 Digital rights management system transfer of content and distribution"
- Hesselink, L., Rizal, D., Bjornson, E. S.. "United States Patent 9,071,574 Access and control system for network-enabled devices"
- Hesselink, L. and Batra, R.. "United States Patent 9,129,138 Methods and systems for a portable data locker"
- Hesselink, L., Rizal, D., Bjornson, E. S.. "United States Patent 9,191,443 Managed peer-to-peer applications, systems and methods for distributed data access and storage"
- Blankenbeckler, D. L. Ybarra, D., Hesselink, L.. "United States Patent 9,214,184 Digital rights management system, devices, and methods for binding content to an intelligent storage device"
- Hesselink, L.. "United States Patent 9,247,284 Portable content container displaying A/V files in response to a command received from a consumer device"
- Blankenbeckler, D. L., Ybarra, D. O., Hesselink, L.. "United States Patent 9,342,701 Digital rights management system and methods for provisioning content to an intelligent storage"
- Hesselink, L., Rizal, D., Bjornson, E. S.. "United States Patent 9,348,864 Managed peer-to-peer applications, systems and methods for distributed data access and storage"
- Maldonado, J. R., Cheng, Y-T, Pianetta, P., Pease, R. F. W., Hesselink, L.. "United States Patent 9,406,488 Enhanced photoelectron sources using electron bombardment"
- Blankenbeckler, D. L., Ybarra, D. O., Hesselink, L.. "United States Patent 9,424,400 Digital rights management system transfer of content and distribution"
- Hesselink, L., Fabian R., Pease W., Pianetta P., Maldonado J. R., Cheng Y-T, and Ryan J.. "United States Patent 9,520,260 Photo emitter x-ray source array (PeXSA)"
- Cheng, Y-T., Hesselink, L., Kim, Y-S., Takashima, Y., Yuen, M.. "United States Patent 9,772,407 Photonic-channeled X-ray detector array"

LINKS

- <https://hesselinkgroup.stanford.edu/>: <https://hesselinkgroup.stanford.edu/>

Teaching

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Anna Kochnev Goldstein

Doctoral Dissertation Advisor (AC)

Wei Ren

Doctoral (Program)

Andrew Bechdolt, Jasmine Cox, Anna Kochnev Goldstein, Robert Lupoiu, Janelle Mabrey, Wei Ren, Clarisse Woodahl

Publications

PUBLICATIONS

- **Optoelectronic tweezers meet microfluidics: A powerful approach for micromanipulation and biochemical analysis** *APPLIED PHYSICS REVIEWS*
Li, Z., Yao, C., Li, G., Du, H., Li, H., Yu, W., Fu, R., Chen, K., Zhou, M., Xie, H., Xie, W., Xie, H., Shui, et al
2026; 13 (2)
- **Expanding medium compatibility with lateral-field optoelectronic tweezers** *APPLIED PHYSICS LETTERS*
Zaman, M., Wu, M., Ren, W., Hesselink, L.
2025; 127 (10)
- **Light-orchestrated microdroplet reactors for enhanced solid-phase synthesis**

Wu, M., Zaman, M. A., Jensen, M. A., Ren, W., Davis, R. W., Hesselink, L.
edited by Zappe, H., Piyawattanametha, W., Park, Y. H.
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- **Impedance matching in optically induced dielectrophoresis: Effect of medium conductivity on trapping force.** *Applied physics letters*
Zaman, M. A., Wu, M., Ren, W., Hesselink, L.
2024; 125 (5): 051108
- **Dielectrophoretic bead-droplet reactor for solid-phase synthesis.** *Nature communications*
Padhy, P., Zaman, M. A., Jensen, M. A., Cheng, Y. T., Huang, Y., Wu, M., Galambos, L., Davis, R. W., Hesselink, L.
2024; 15 (1): 6159
- **Spectral tweezers: Single sample spectroscopy using optoelectronic tweezers.** *Applied physics letters*
Zaman, M. A., Wu, M., Ren, W., Jensen, M. A., Davis, R. W., Hesselink, L.
2024; 124 (7): 071104
- **Microparticle electrical conductivity measurement using optoelectronic tweezers.** *Journal of applied physics*
Ren, W., Zaman, M. A., Wu, M., Jensen, M. A., Davis, R. W., Hesselink, L.
2023; 134 (11): 113104
- **Resolution improvement of optoelectronic tweezers using patterned electrodes.** *Applied physics letters*
Zaman, M. A., Wu, M., Ren, W., Jensen, M. A., Davis, R. W., Hesselink, L.
2023; 123 (4): 041104
- **Topological visualization of the plasmonic resonance of a nano C-aperture.** *Applied physics letters*
Zaman, M. A., Ren, W., Wu, M., Padhy, P., Hesselink, L.
2023; 122 (8): 081107
- **Controlled Transport of Individual Microparticles Using Dielectrophoresis.** *Langmuir : the ACS journal of surfaces and colloids*
Zaman, M. A., Padhy, P., Wu, M., Ren, W., Jensen, M. A., Davis, R. W., Hesselink, L.
2022
- **Plasmonic Response of Nano-C-apertures: Polarization Dependent Field Enhancement and Circuit Model** *PLASMONICS*
Zaman, M., Hesselink, L.
2022
- **Dynamically controllable plasmonic tweezers using C-shaped nano-engravings.** *Applied physics letters*
Zaman, M. A., Hesselink, L.
2022; 121 (18): 181108
- **Statistical optics modeling of dark-field scattering in X-ray grating interferometers: Part 2. Simulation** *OPTICS EXPRESS*
Wilde, J. P., Hesselink, L.
2021; 29 (25): 40917-40933
- **Statistical optics modeling of dark-field scattering in X-ray grating interferometers: Part 1. Theory** *OPTICS EXPRESS*
Wilde, J. P., Hesselink, L.
2021; 29 (25): 40891-40916
- **Modeling Brownian Microparticle Trajectories in Lab-on-a-Chip Devices with Time Varying Dielectrophoretic or Optical Forces.** *Micromachines*
Zaman, M. A., Wu, M., Padhy, P., Jensen, M. A., Hesselink, L., Davis, R. W.
2021; 12 (10)
- **Microparticle transport along a planar electrode array using moving dielectrophoresis.** *Journal of applied physics*
Zaman, M. A., Padhy, P., Ren, W., Wu, M., Hesselink, L.
2021; 130 (3): 034902
- **Dynamically controlled dielectrophoresis using resonant tuning.** *Electrophoresis*
Padhy, P., Zaman, M. A., Jensen, M. A., Hesselink, L.
2021

- **iLabs as an online laboratory platform: A case study at Stanford University during the COVID-19 Pandemic**
Zaman, M., Neustock, L., Hesselink, L.
edited by Klinger, T., Kollmitzer, C., Pester, A.
IEEE.2021: 1621-1629
- **Automatic Generation and Easy Deployment of Digitized Laboratories** *IEEE TRANSACTIONS ON INDUSTRIAL INFORMATICS*
Torre, L., Neustock, L., Herring, G. K., Chacon, J., Clemente, F., Hesselink, L.
2020; 16 (12): 7328–37
- **Optoelectronic tweezers with a non-uniform background field** *APPLIED PHYSICS LETTERS*
Zaman, M., Padhy, P., Cheng, Y., Galambos, L., Hesselink, L.
2020; 117 (17)
- **Construction and validation of UV-C decontamination cabinets for filtering facepiece respirators** *APPLIED OPTICS*
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2020; 59 (25): 7585–95
- **Modeling UV-C irradiation chambers for mask decontamination using Zemax OpticStudio** *APPLIED OPTICS*
Wilde, J. P., Baer, T. M., Hesselink, L.
2020; 59 (25): 7596–7605
- **Modeling of an X-ray grating-based imaging interferometer using ray tracing** *OPTICS EXPRESS*
Wilde, J. P., Hesselink, L.
2020; 28 (17): 24657–81
- **Solenoidal optical forces from a plasmonic Archimedean spiral** *PHYSICAL REVIEW A*
Zaman, M., Padhy, P., Hesselink, L.
2019; 100 (1)
- **Fokker-Planck analysis of optical near-field traps.** *Scientific reports*
Zaman, M. A., Padhy, P., Hesselink, L.
2019; 9 (1): 9557
- **Solenoidal optical forces from a plasmonic Archimedean spiral.** *Physical review. A*
Zaman, M. A., Padhy, P., Hesselink, L.
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