SYNOPSYS®
Synopsys, Inc.
Optical Solutions Group
199 S. Los Robles Avenue, Suite 400
Pasadena, CA 91101

T 626.795.9101
F 626.795.9102
http://optics.synopsys.com

John R. Rogers, Ph.D.

Professional Experience

2010-Present	Senior Scientist/Imaging Optics, Synopsys OSG
2005-2010	Principal Engineer/Imaging, Optical Research Associates
2001-2005	Director, Photonic and Imaging Engineering Services, Optical Research Associates
1997-2001	Assistant Director of Optical Engineering Services, Optical Research Associates
1991-1997	Optical Engineer, Leica AG
1989-1991	Head, Optical Design and Metrology, Leica Aarau (formerly Kern and Co. AG)
1988-1989	Optical Designer, Leica AG (formerly Wild Leitz AG)
1984-1988	Assistant Professor, Institute of Optics, University of Rochester
1983-1984	Optical Designer, Kern Co., AG
1978-1983	Research Assistant, University of Arizona
1977-1978	Mathematician, Computer Sciences Corporation
1976-1977	Programmer, David Taylor Naval Ship R & D Center

Education

1983	Ph.D. Degree in Optics, University of Arizona
1981	M.S. Degree in Optics, University of Arizona
1976	B.S. Degree in Mathematics, Virginia Polytechnic Institute

In the area of optical design, His experience ranges from conceptual design through assembly and alignment. He has designed and toleranced such diverse systems as 3D imaging for clinical dental use, ophthalmic surgical systems, biocular and binocular systems, FLIR systems, helmet-mounted displays, zoom lenses, and systems using Gradient Index (GRIN) lenses. He has designed and toleranced diffractive optical systems for both imaging and pattern-generating applications. Working closely with micro-optics fabricators, he has generated mask patterns for lithographic production of diffractive optical elements, and has hands-on experience in the alignment and testing of such systems.

He is experienced in the optimization, analysis and tolerancing of optical systems for photonics. He has used physical optics propagation routines to optimize insertion loss characteristics of optical systems, and examined the sensitivity of insertion loss to fabrication and alignment errors of the systems.

In the area of non-imaging optics, he has designed and analyzed systems for illumination and fluorescence detection for a space borne application, as well as a collection system for an airborne LIDAR application.

In addition to optical design, he has substantial experience in interferometry, optical testing, as well as optical fabrication. He has hands-on experience with tilt sensors, interferometers from the deep UV to the thermal IR, differential interference microscopes, as well as MTF and distortion test equipment. He has designed software for phase shifting interferometers, and has designed systems for optical alignment using white light interferometry (optical coherence tomography).

He actively researched design techniques for tilted component optical systems, and has taught optical testing, geometrical optics, and lens design at the university level. Recent research interests center on optimization techniques for the desensitization of optical systems.

Patents

US 7,360,899 B2	Beamsplitting structures and methods in optical systems
US 7,230,766 B2	Optical Combiner Designs and Head Mounted Displays
US 7,196,849	Apparatus and methods for illuminating optical surfaces
US 6,612,693	Panoramic reverse Galilean telescope optics for an underwater diving mask
US 6,337,765 B1	Stereomicroscope
US 6,297,497	Method and device for determining the direction in which an object is located
US 6,069,733 A	Stereomicroscope
US 6,043,890 A	Arrangement for Determining the Position of a Surgical Microscope
US 5,953,114	Method of determining measurement-point position data and device for measuring the magnification of an optical beam path
US 5, 841,149	Method of Determining the Distance of a Feature of an Object from a Microscope, and a Device for Carrying Out the Method
WO9745700 A1	Optical sensor for tracking an aiming mark
WO9745701 A1	Optical sensor for determining the angle of inclination
WO9745706 A1	Optical sensor for finding the angle of rotation of a rotary axis

Publications

J. R. Rogers, “The importance of induced aberrations in the correction of secondary color”, Adv.Opt.Techn. 2(1), p. 41-51 (2013)

J. R. Rogers, “Modeling homogeneity for elements made of block glass”, EOS OSJ (2012)

J. R. Rogers, “Orthogonal polynomials and tolerancing”, Invited paper, Proc. SPIE 8131, 81310D (2011)

J. R. Rogers, “Homogeneity tolerances for Optical Elements”, Invited paper, SPIE Optifab_TD-0736.pdf (2011)

T. Kuper and J. R. Rogers, "Automatic Determination of Optimal Aspheric Placement," International Optical Design Conference, OSA Technical Digest (CD) (Optical Society of America, 2010), paper IThB3.

J. R. Rogers, “A Comparison of Anamorphic and Keystone-Distorted Surface Types for Aberration Correction," in International Optical Design Conference, OSA Technical Digest (CD) (Optical Society of America, 2010), paper IMC2.

J. R. Rogers, “Aktuelle Entwicklungen in der Optikdesignsoftware,” Invited paper, German Optical Society meeting, Wetzlar, Germany (May 2010).

O. Cakmakci, J.P. Rolland, K.P. Thompson and J. R. Rogers, "Design efficiency of 3188 optical designs," SPIE Optics + Photonics Conference, 2008.

J. R. Rogers, “Slope Tolerances," 2008 Invited Paper, ODF08 Taipei, 2008.

J. R. Rogers, "Three-bar resolution versus MTF: how different can they be anyway?" SPIE 7071(1), (2008).

J. R. Rogers, “Slope error tolerances for optical surfaces,” Invited paper ODF Japan, (2008).

J. R. Rogers, “Slope error tolerances for optical surfaces,” Invited paper SPIE Technical Digest TD04-04, (2007).

J. R. Rogers, "Using Global Synthesis to Find Tolerance-Insensitive Design Forms," Proc. SPIE 6432, 63420M1- 63420M11 (2006).

J. R. Rogers, "Design of an advanced helmet mounted display (AHMD)," Proc. SPIE 5801 p.304-315, (2005).

J. R. Rogers, "Using Nodal Aberration Theory for Optical Design," in **Robert Shannon and Roland Shack, Legends in Applied Optics** J. Harvey and R.B. Hooker, eds., SPIE, Bellingham WA, (2005)

J. R. Rogers, "Using Nodal Aberration Theory for Optical Design," Invited paper, SPIE Annual Meeting PM148 (2004).

J. R. Rogers, "Techniques for the design of tilted-component systems” presented at ODF Japan, 2002

J. R. Rogers, "How to Talk to an Optical Design Consultant," OSA Annual Meeting, Long Beach, CA, (2001).

J. R. Rogers, "Design of a wide-field, unity magnification dive mask," Proc. SPIE 5962, (2005).

J. R. Rogers, “Neue Entwicklungen und zukunftige Trends in der Optikdesignsoftware,” German Optical Society meeting, Gottingen, (June 2001).

J. R. Rogers, “Techniques and Tools for Obtaining Symmetrical Performance from Tilted-Component Systems,” Optical Engineering 39,7, 1776-1787 (2000).

J. R. Rogers, “Design techniques for systems containing tilted components” SPIE 3737, p. 286 (1999);

M. Gale, M. Rossi, M. Scheidt, L. Stauffer, and J. R. Rogers, “Integrated Micro-Optical Systems Fabricated by Replication Technology,” Presented at IODC Conference, Proc. SPIE 3482, (1998).

M. Hopler and J. R. Rogers, “Interferometric Measurement of Group and Phase Refractive Index,” Applied Optics 30, 7, pp.735-744, (1991).

J. R. Rogers, “Optical Lenses,” in **The Handbook of Microwave and Optical Components**, K. Chang, ed. Wiley and Sons, Inc., New York (1989).

D. Buralli, G. M. Morris, and J. R. Rogers, “Optical Performance of Holographic Kinoforms,” Applied Optics 28, 5, 976, (1989).

D. Buralli and J. R. Rogers, “Some Fundamental Limitations of Achromatic Holographic Systems,” Journal of the Optical Society of America 6, 1863, (1989).

J. R. Rogers, M. Harrigan and R. Loce, “The Y-Y Diagram for Radial Gradient Systems,” Applied Optics 27, 3, 452, (1988).

M. Harrigan, R. Loce, and J. R. Rogers, “Use of the Y-Y Diagram to GRIN Rod Design,” Applied Optics 27, 3, 459, (1988).

J. R. Rogers and M. Hopler, “Conversion of Group Refractive Index to Phase Refractive Index,” Journal of the Optical Society of America 5, 10, 1595, (1988).

J. R. Rogers and S. Tachihara, “Practical Tilted Mirror Systems,” Proc. SPIE 679, 12, (1986).

J. R. Rogers, “Vector Aberration Theory and the Design of Off-Axis Systems,” Proc. SPIE 554, 76, (1985).

J. R. Rogers, “Aberrations of Optical Systems with Large Tilts and Decentrations,” Proc. SPIE 399, 272, (1983).

J. R. Rogers, “Fringe Shifts in Multiple Beam Fizeau Interferometry,” Journal of the Optical Society of America, 72, 638, (1982).

Professional Societies

Member	Optical Society of America
Member	Society of Photo-Optical Instrumentation Engineers
Member	German Society for Applied Optics