

Kevin B. Aptowicz

Department of Physics and Engineering
365 Science and Engineering Center & Commons
West Chester University
West Chester, PA 19383
Phone: 610.436.3010
Email: kaptowicz@wcupa.edu

(Updated: 13-March-2025)

PROFESSIONAL EXPERIENCE

2015 – Present	Professor of Physics , West Chester University	West Chester, PA
2023 – Present	Visiting Scientist , Lawrence Livermore National Laboratory	Livermore, CA
2006 – Present	Visiting Scholar , University of Pennsylvania	Philadelphia, PA
2010 – 2015	Associate Professor of Physics , West Chester University	West Chester, PA
2005 – 2010	Assistant Professor of Physics , West Chester University	West Chester, PA

EDUCATION

2001 – 2004	Yale University <i>Ph.D. in Applied Physics</i> Thesis: “Angularly-Resolved Elastic Light Scattering of Micro-Particles” Research Advisor: Dr. Richard K. Chang	New Haven, CT
1999 – 2001	University of Colorado <i>Master of Science in Electrical Engineering with a strong optics emphasis</i> Thesis: “Efficient Light Collection for a Low-Cost Respiratory Oxygen Sensor” Research Advisor: Dr. R. Brian Hooker	Boulder, CO
1995 – 1999	Columbia University, School of Engineering and Applied Science <i>Bachelor of Science in Electrical Engineering</i>	New York, NY

AWARDS

2019 American Chemical Society Petroleum Research Fund Best Reviewer
2017 Spotlight on Research Award Recipient from State Senator Dinniman
2013 Distinguished Sponsored Research Award of West Chester University

PATENT

Method and instrumentation for determining absorption and morphology of individual airborne particles, S.C. Hill, R.G. Pinnick, Y.L. Pan, **K.B. Aptowicz**, K.P. Gurton, and R.K. Chang, U.S. Patent Number 7,126,687 B2 (Issued: October 26th, 2006).

BOOK CHAPTERS

Laser-Induced Fluorescence Spectra and Angular Elastic Scattering Patterns of Single Atmospheric Aerosol Particles, R.G. Pinnick, Y.L. Pan, S.C. Hill, **K.B. Aptowicz**, and R.K. Chang, in ‘Fundamentals and Applications in Aerosol Spectroscopy,’ R. Signorell and J.P. Reid (eds), CRC Press (ISBN: 978-1420085617), (2011).

Discerning Single Particle Morphology from Two-Dimensional Light Scattering Patterns, S. Holler and **K.B. Aptowicz**, in ‘Optical Processes in Microparticles and Nanostructures,’ A. Serpenguzel and A.W. Poon (eds), World Scientific (ISBN: 978-9814295772), (2010).

Angularly Resolved Elastic Scattering from Airborne Particle, P.H. Kaye, **K.B. Aptowicz**, R.K. Chang, Y. Foot, and G.Videen, in 'Optics of Biological Particles,' A.Hoekstra, V. Maltsev, and G.Videen (eds), Springer (ISBN: 1-4020-5500-5), 31-61, (2007).

GRANTS & SUBCONTRACTS

Subcontract, Lawrence Livermore National Laboratory (LLNL), awarded winter 2024
B661561 – \$95,577

Light scattering from non-spherical particles: Consultation and undergraduate research

CSM Student Engagement Award, West Chester University (WCU), awarded Fall 2023
\$2,985

Physics Social Justice Scholar

Innovation in Diversity & Inclusion Grants Council, West Chester University (WCU), awarded Fall 2021
\$2,520

Exploring Issues in Inclusion and Access in the Department of Physics and Engineering

American Physics Society's Status on Women in Physics, American Physical Society (APS), awarded Winter 2021
\$1,000

Research Grant, Army Research Office (ARO), awarded Fall 2014

W911NF-14-2-0098 – \$168,166,

Angularly-Resolved Elastic Light Scattering of Atmospheric Particles: Experimental Measurements and Model Verification

Research in Undergraduate Institutions (RUI) Grant, National Science Foundation (NSF), awarded Summer 2012.

DMR 1206231 – \$204,000,

Origins of Mechanical Fragility in Disordered Solids

Cottrell College Science Award (CCSA), Research Corporation, awarded Spring 2009
7876 – \$54,970

Structural and dynamic response of a colloidal glass to local forcing

CASSDA Grant, West Chester University (WCU), awarded Fall 2008

\$1,520

Undergraduate Research Projects: Examining an underlying assumption of climate modeling,

FPDC Grant, PASSHE (PA's State System of Higher Education), awarded Spring 2006

\$4,000

Fundamental study of freezing, melting, and glass formation using colloidal crystals of thermosensitive gel particle

CASSDA Grant, West Chester University (WCU), awarded Fall 2005

\$1,425

Optical scattering patterns of aerosols from arid regions

PUBLICATIONS

The e/m experiment: Student exploration into systematic uncertainty, N.P. Gray, T.K. Rutledge, L. Parrott, C.A. Barns, **K.B. Aptowicz**, American Journal of Physics 92 (7), 538-544 (2024).

(N.P. Gray, T.K. Rutledge, L. Parrott, C.A. Barns are WCU undergraduate researchers.)

Depletion-driven antiferromagnetic, paramagnetic, and ferromagnetic behavior in quasi-two-dimensional buckled colloidal solids, A. Hill, M. Tanaka, **K.B. Aptowicz**, C.K. Mishra, A.G. Yodh, & X. Ma, Journal of Chemical Physics, 158:19 (2023).

Classification of Aggregates Using Multispectral Two-Dimensional Angular Light Scattering Simulations, J.M. Mendoza, K. Chen, S. Walters, E. Shipley, **K.B. Aptowicz**, & S. Holler, Molecules, 27.19: 6695 (2022).

(S. Walters is a WCU undergraduate researcher.)

Review of Elastic Light Scattering from Single Aerosol Particles and Application in Bioaerosol Detection, Y.L. Pan, **K. Aptowicz**, J. Arnold, S. Cheng, A. Kalume, P. Piedra, C. Wang, J. Santaripa, G. Videen, Journal of Quantitative Spectroscopy & Radiative Transfer, 279, 108067 (2022).

Correlations between short- and long-time relaxation in colloidal supercooled liquids and glasses, C.K. Mishra, X. Ma, P. Habdas, **K. B. Aptowicz**, and A. G. Yodh, Physical Review E, 100, 020603(R) (2019).

Characterizing the size and absorption of single nonspherical aerosol particles from angularly-resolved elastic light scattering, S. Walters, J. Zallie, G. Seymour, Y.L. Pan, G. Videen, and **K.B. Aptowicz**, Journal of Quantitative Spectroscopy & Radiative Transfer, 224, pg 439-444 (2019).

(S. Walters, J. Zallie, G. Seymour are WCU undergraduate researchers.)

Temperature-Sensitive Hydrogel-Particle Films from Evaporating Drops, T. Still, P.J. Yunker, K. Hanson, Z.S. Davidson, M.A. Lohr, **K.B. Aptowicz**, and A.G. Yodh, Adv. Mater. Interfaces 2, 1500371 (2015).

Vibrational and structural signatures of the crossover between dense glassy and sparse gel-like attractive colloidal packings, M.A. Lohr, T. Still, R. Ganti, M.D. Gratale, Z.S. Davidson, **K.B. Aptowicz**, C.P. Goodrich, D.M. Sussman, and A.G. Yodh, Phys. Rev. E, **90** 062305 (2014).

Decomposition of atmospheric aerosol phase function by particle size and asphericity from measurements of single particle optical scattering patterns, **K.B. Aptowicz**, Y.L. Pan, S.D. Martin, E. Fernandez, R.K. Chang, and R.G. Pinnick, J. Quant. Spectrosc. Radiat. Transfer, **131** 13-23 (2013).

(S.D. Martin is a WCU undergraduate researcher.)

Automated classification of single airborne particles from two-dimensional angle-resolved optical scattering (TAOS) patterns by non-linear filtering, G.F. Crosta, Y.L. Pan, **K.B. Aptowicz**, C. Casati, R.G. Pinnick, R.K. Chang, G.W. Videen, J. Quant. Spectrosc. Radiat. Transfer, **131** 215-233 (2013).

Synthesis of Micrometer-Size Poly(N-isopropylacrylamide) Microgel Particles with Homogeneous Crosslinker Density and Diameter Control, T. Still, K. Chen, A.M. Alsayed, **K.B. Aptowicz**, and A.G. Yodh, J. Colloid Interface Sci., **405** 96-102 (2013).

- Phonons in two-dimensional soft colloidal crystals*, K. Chen, T. Still, S. Schoenholz, **K.B. Aptowicz**, M. Schindler, A.C. Maggs, A.J. Liu, A.G. Yodh, Phys. Rev. E, **88** 022315 (2013).
- Phonons in two-dimensional colloidal crystals with bond-strength disorder*, M.D. Gratale, P.J. Yunker., K. Chen, T. Still, **K.B. Aptowicz**, and A.G. Yodh, Phys. Rev. E, **87** 052301 (2013).
- Influence of surface roughness on the elastic-light scattering patterns of micron-sized aerosol particles* J.C. Auger, G.E. Fernandes, **K.B. Aptowicz**, Y.L. Pan, and R.K. Chang, Appl. Phys. B **99** 229–234 (2010).
- Irreversible rearrangements, correlated domains, and local structure in aging glasses* P. Yunker, Z. Zhang, **K.B. Aptowicz**, and A. G. Yodh, Phys. Rev. Lett. **103**, 115701 (2009).
- Thermal vestige of the zero-temperature jamming transition* Z. Zhang, N. Xu, D.T.N Chen, P. Yunker, A.M. Alsayed, **K.B. Aptowicz**, P. Habdas, A.J. Liu, S.R. Nagel and A.G. Yodh, Nature **459** (7244) 230-233 (2009).
- Angularly-resolved light scattering from aerosolized spores: Observations and calculations*, J.C. Auger, **K.B. Aptowicz**, R.G. Pinnick, Y.L. Pan, R.K. Chang, Optics Letters **32**, (22) 3358-3360 (2007).
- Simultaneous forward- and backward-hemisphere elastic-light-scattering patterns of respirable-size aerosols*, G.E. Fernandes, Y.L. Pan, R.K. Chang, **K. Aptowicz**, and R.G. Pinnick, Optics Letters **31** (20) 3034-3036 (2006).
- Optical scattering patterns from single urban aerosol particles at Adelphi, Maryland, USA; a classification relating to particle morphologies*, **K.B. Aptowicz**, R.G. Pinnick, S.C. Hill, Y.L. Pan, and R.K. Chang, Journal of Geophysical Research, **111**, D12212 (2006).
- Two-dimensional angular optical scattering patterns in the mid-infrared of microdroplets: on and off absorption*, **K.B. Aptowicz**, Y.L. Pan, and R.K. Chang, R.G. Pinnick, S.C. Hill, R.L. Tober, B.V. Bronk, Optics Letters **29** (17) 1965-1967 (2004).
- Characterizing and monitoring respiratory aerosols by light scattering*, Y.L. Pan, **K.B. Aptowicz**, R.K. Chang, M. Hart, and J.D. Eversole, Optics Letters, **28** (8), 589-591 (2003).

P R E S E N T A T I O N S & P O S T E R S

2024 *Quantifying Aerosol Size and Sphericity from Light Scattering Patterns of Gaussian Random Spheres*, T DeRouanna, S D'Arcangelo, N Black, K Aptowicz, APS Mid-Atlantic Meeting, Nov 15th–17th, 2023.

2024

Angularly-resolved light scattering patterns of clusters: impact of changes to internal structure, S D'Arcangelo, T DeRouanna, N Black, K Aptowicz, APS Mid-Atlantic Meeting, Nov 15th–17th, 2023.

- 2023 *The e/m experiment: student investigation into systematic uncertainties*, N Gray, **K Aptowicz**, L Parrott, T Rutledge, C Barns, APS Mid-Atlantic Meeting, Nov 3rd - 5th, 2023.
- Exploring the boundary between spherical and nonspherical atmospheric aerosol particles using angularly-resolved light scattering*, G. Seymour, S. Walters, D. Landgraf, Y.L. Pan, G. Videen, R.G. Pinnick, **K.B. Aptowicz**, 20th Electromagnetic & Light Scattering Conference, Almunecar, Spain, May 15th – 19th, 2023.
- Classification of Aggregates Using Multispectral Two-Dimensional Angular Light Scattering Simulations*, S. Holler, J.M. Mendoza, K. Chen, S. Walters, E. Shipley, **K.B. Aptowicz**, 20th Electromagnetic & Light Scattering Conference, Almunecar, Spain, May 15th – 19th, 2023.
- Amplifying student voices and creating spaces for difference*, M. Pyankov & **K. Aptowicz**, webinar hosted by the American Association for the Advancement of Science (AAAS) & American Association of Physics Teachers (AAPT), July 26th, 2023.
(**M. Pyankov, a WCU undergraduate, co-hosted the webinar**)
- Rheological and Optical Behavior of Suspensions of Shape-Changing Liquid Crystal Drops*, C. Slaughter, Z. Liu, W.S. Wei, **K. Aptowicz**, P. Collings, C. Osuji, & A. Yodh, 2023 American Physical Society March Meeting, Las Vegas, NV, March 15th – March 10th, 2023.
- 2019 *Morphological Discrimination and Classification of Complex Aerosol Aggregates via Simulated Two-Dimensional Multi-Spectral Light Scattering*, S. Holler, E. Shipley, S. Walters, **K. Aptowicz**, PIERS, Xiamen, China, December 17th to 20th 2019.
- 2018 *Measuring single-particle absorption from elastic light scattering patterns of complex aggregates*, S. Walters, J. Zallie, G. Seymour, D. Landgraf, and **K. Aptowicz**, 17th Electromagnetic & Light Scattering Conference, Texas Station, TX, March 4th – 9th, 2018.
(**S. Walters, a WCU undergraduate, presented poster**)
- Insights into atmospheric aerosol particle morphology from simulations of single-particle light scattering*, G. Seymour, D. Landgraf, R. Pinnick, Y. Pan, and **K. Aptowicz**, 17th Electromagnetic & Light Scattering Conference, Texas Station, TX, March 4th – 9th, 2018.
(**G. Seymour, a WCU undergraduate, presented poster**)
- 2017 *Angularly-Resolved Elastic Light Scattering of Atmospheric Particles*, **K. Aptowicz**, Army Research Office Division Review, Durham, NC, August 7th – 11th, 2017
- Insights into particle morphology from single-particle light scattering*, D. Landgraf, J. Zallie, R.G. Pinnick, Y.L. Pan, and **K.B. Aptowicz**, 16th Electromagnetic & Light Scattering Conference, College Park, MD, March 19th – 25th, 2017.
- 2016 *Classifying Sphere, Sphere-Like, and Non-Spherical Particles Using Two-Dimensional Angular Optical Scattering (TAOS) Patterns*, D. Landgraf, J.T. Zallie, Y. Pan, R.G. Pinnick, and **K.B. Aptowicz**, American Geophysical Union Fall Meeting, San Francisco, CA, December 12th – 16th, 2016.
(**D. Landgraf, a WCU undergraduate, presented poster**)
- Insights Into Particle Morphology From the Autocorrelation Function of Two-Dimensional Angular Optical Scattering (TAOS) Patterns*, J.T. Zallie, Y. Pan, R.G. Pinnick, and **K.B.**

Aptowicz, American Geophysical Union Fall Meeting, San Francisco, CA, December 12th – 16th, 2016.

(J. T. Zallie, a WCU undergraduate, presented poster)

Single-Particle Morphology from Two-Dimensional Autocorrelation of Angularly-Resolved Light Scattering, **K.B. Aptowicz**, D. Landgraf, J. Zallie, G. Videen, S. Hill, R. Pinnick, and Y. Pan, American Association of Aerosol Research (AAAR) 35th Annual Conference, Portland, OR, October 17th – October 21st, 2016.

Diffusion of micrometer-sized soft particles in confinement, B. Jordan and **K.B. Aptowicz**, 2016 American Physical Society March Meeting, Baltimore, MD, March 14th – March 18th, 2016.

(B. Jordan, a WCU undergraduate, presented poster.)

2015

Sizing of individual aerosol particles using TAOS (Two-dimensional Angular Optical Scattering) pattern total intensity, J.T. Zallie, **K.B. Aptowicz**, S. Martin, and Y. Pan, American Geophysical Union Fall Meeting, San Francisco, CA, December 14th – 18th, 2015. (J. T. Zallie, a **WCU undergraduate**, presented poster)

Exploring the evolution of the aerosol phase function away from spherical particles using scattering patterns from single atmospheric aerosol particles, D. Landgraf, **K.B. Aptowicz**, J. Sugar, S. Martin, and Y. Pan., American Geophysical Union Fall Meeting, San Francisco, CA, December 14th – 18th, 2015.

(D. Landgraf, a WCU undergraduate, presented poster)

Decomposition of atmospheric aerosol phase function by particle size and morphology via single particle scattering measurements, **K.B. Aptowicz**, Colloquium Presentation, Fordham University, Bronx, NY, March 25th, 2015.

Thermophoresis of micrometer-sized poly(N-isopropylacrylamide) microgel particles, **K. Aptowicz**, T. Still, A. Yodh, 2015 American Physical Society March Meeting, San Antonio, TX, March 2nd – March 6th, 2015.

Free-Standing Temperature-Sensitive Hydrogel-Particle Membranes from Evaporating Drops, T. Still, P. Yunker, **K. Aptowicz**, K. Hanson, Z. Davidson, M. Lohr, A.G. Yodh, 2015 American Physical Society March Meeting, San Antonio, TX, March 2nd – March 6th, 2015.

Hydrodynamic damping of dense colloidal packings under confinement, M. Ryan, T. Still, M. Waite, A. Yodh, **K. Aptowicz**, 2015 American Physical Society March Meeting, San Antonio, TX, March 2nd – March 6th, 2015.

(M. Ryan, a WCU undergraduate, gave the talk.)

2014

Hydrodynamic damping of collective motion in a quasi-two-dimensional dense colloidal particle suspension, M. Ryan, T. Still, A. Yodh, **K. Aptowicz**, 2014 American Physical Society March Meeting, Denver, CO, March 2nd – March 7th, 2014.

(M. Ryan, a WCU undergraduate, gave the talk.)

Categorizing Dense Attractive 2D Colloidal Packings using Vibrational Modes and Local Structure, M. Lohr, T. Still, **K. Aptowicz**, Y., XU, M, Gratale, A. Yodh, 2014 American Physical Society March Meeting, Denver, CO, March 2nd – March 7th, 2014.

Mechanical response of a colloidal glass undergoing repeated local perturbation, T. Still, Y. Xu, K. Aptowicz, A. Yodh, 2014 American Physical Society March Meeting, Denver, CO, March 2nd – March 7th, 2014.

2013

Decomposition of atmospheric aerosol phase function by particle size and morphology via single particle scattering measurements, **K.B. Aptowicz**, Y.L. Pan, S.D. Martin, E. Fernandez, R.K. Chang, R.G. Pinnick, American Geophysical Union Fall Meeting, San Francisco, CA, December 9th – 13th, 2013.

Soft spots and light-force induced rearrangements in colloidal glasses (Invited Paper), A.G. Yodh, Y. Xu, T. Still, **K.B. Aptowicz**, M. Gratale, SPIE Optical Trapping and Micromanipulation X, San Diego, CA, August 25th – 29th, 2013.

Classification and Recognition of Light Scattering Patterns from Airborne Particles, G.F. Crosta, Y.L. Pan, G. Videen, **K.B. Aptowicz**, R.K. Chang, Society for Industrial and Applied Mathematics Annual Meeting, July 8th – 12th 2013.

Undergraduate Research in Soft Matter Physics, **K.B. Aptowicz**, Seminar Presentation, University of Pennsylvania, Philadelphia, PA, May 18th, 2013.

Discrimination of airborne material particles from light scattering (TAOS) patterns (Invited Paper), G.F. Crosta, Y.L. Pan, G. Videen, **K.B. Aptowicz**, R.K. Chang, SPIE Defense, Security, and Sensing, Baltimore, MD, April 29th – May 3rd, 2013.

Simultaneous measurement of sphericity and scattering phase functions from single atmospheric aerosol particles in Las Cruces, NM, S. Martin, **K. Aptowicz**, Y.L. Pan, R. Chang, G. Pinnick, 2013 American Physical Society March Meeting, Baltimore, MD, March 18th – March 22nd, 2013.

(S. Martin, a WCU undergraduate, gave the talk.)

Local strain field fluctuations in quasi-two-dimensional colloidal glasses, Y. Xu, T. Still, **K. Aptowicz**, A. Yodh, 2013 American Physical Society March Meeting, Baltimore, MD, March 18th – March 22nd, 2013.

Glass-like dynamics of a structural colloidal crystal in a disordered potential landscape, **K. Aptowicz**, T. Still, M. Gratale, Y. Xu, A. Yodh, 2013 American Physical Society March Meeting, Baltimore, MD, March 18th – March 22nd, 2013.

Correlations Between Structure, Vibrational Modes and Collective Motion in Dense Attractive 2D Colloidal Packings, M. Lohr, T. Still, **K. Aptowicz**, Y. Xu, M. Gratale, A. Yodh, 2013 American Physical Society March Meeting, Baltimore, MD, March 18th – March 22nd, 2013.

Simultaneous measurement of sphericity and scattering phase functions from single atmospheric aerosol particles, **K.B. Aptowicz**, Seminar Presentation, U.S. Army Research Laboratory, Adelphi, MD, February 25th, 2013.

2012

Local Perturbation of Quasi-2D Soft Colloidal Glasses, T. Still, K. Chen, P. J. Yunker, **K. Aptowicz**, A. G. Yodh, 244th American Chemical Society National Meeting, Philadelphia, PA, August 19th – August 23rd, 2012.

Local Perturbation of Quasi Two-Dimensional Colloidal Glasses, **K.B. Aptowicz**, T. Still, K. Chen, P. Yunker, A.G. Yodh, 2012 American Physical Society March Meeting, Boston, MA, February 27th – March 2nd, 2012.

Vibrational Modes in Colloidal Crystals, K. Chen, T. Still, **K.B. Aptowicz**, A.G. Yodh, 2012 American Physical Society March Meeting, Boston, MA, February 27th – March 2nd, 2012.

Vibrational Phonon Modes of Two-Dimensional Soft-Particle Colloidal Crystals with Hard-Particle Dopants, M. Gratale, P. Yunker, K. Chen, **K.B. Aptowicz**, A.G. Yodh, 2012 American Physical Society March Meeting, Boston, MA, February 27th – March 2nd, 2012.

2011 *When Things Fall Apart: Origins of Mechanical Fragility in Disordered*, **K.B. Aptowicz**, Colloquium Presentation, Swarthmore College, Swarthmore, PA, November 18th, 2011.

Low-frequency vibrational modes and rearrangements in a colloidal glass subject to point expansion, **K.B. Aptowicz**, M. Colagreco, R. Margolis, P. Yunker, K. Chen, and A.G. Yodh, 2011 American Physical Society March Meeting, Dallas, TX, March 21th – 25th, 2011.

2009 *Shining Light on the Mysterious Liquid-Glass Transition*, **K.B. Aptowicz**, Invited Presentation at West Chester University's Research Day, West Chester, PA, April 14th, 2009.

Structural response of a colloidal glass to local forcing, **K.B. Aptowicz**, P.J. Yunker, S. Gossin, Z. Zhang, and A.G. Yodh, 2009 American Physical Society March Meeting, Pittsburgh, PA, March 16th – 20th, 2009.

Changes in Local Structure and Dynamic Heterogeneity in an Aging Glass, P.J. Yunker, Z. Zhang, **K.B. Aptowicz**, A.M. Alsayed, and A.G. Yodh, 2009 American Physical Society March Meeting, Pittsburgh, PA, March 16th – 20th, 2009.

2008 *Jamming transition in a temperature-sensitive 2D colloidal suspension*, Z. Zhang, D.T.N. Chen, A.G. Yodh, **K.B. Aptowicz**, P. Habdas, 2008 American Physical Society March Meeting, New Orleans, LA, March 10th – 14th, 2008.

2007 *Particle Fingerprinting: Using Elastic Light Scattering to Identify Aerosol Particles*, **K.B. Aptowicz**, Colloquium Presentation, Saint Joseph's University, Philadelphia, PA, September 26th, 2007.

The Quest for Detection and Identification of Bio-aerosols, R.K. Chang, G.E. Fernandes, Y.L. Pan, **K. Aptowicz**, and R.G. Pinnick, PIERS Proceedings, Beijing, China, March 26th – 30th, 2007.

Influence of Micro-particle Surface Roughness on TAOS Patterns: Experimental and Theoretical Studies, J.C. Auger, G.E. Fernandes, Y.L. Pan, **K. Aptowicz**, and R. K. Chang, PIERS Proceedings, Beijing, China, March 26th – 30th, 2007.

2006 *Optical Artifacts in Digital Video Microscopy*, **K.B. Aptowicz**, A.M. Alsayed, Y.L. Han, and A.G. Yodh, Laser Science XXII; The 90th OSA Annual Meeting, Rochester, NY, October 8th - 12th, 2006.

Simultaneous forward and backward hemisphere TAOS patterns of respirable aerosols, G.E. Fernandes, Y.L. Pan, R.K. Chang, **K.B. Aptowicz**, R.G. Pinnick, and S.C. Hill, 7th International Aerosol Conference, St. Paul, MN, July 10th -15th, 2006.

Optical scattering patterns from single urban aerosol particles at Adelphi, Maryland: a classification relating to particle morphologies, **K.B. Aptowicz**, R.G. Pinnick, S.C. Hill, Y.L. Pan, and R.K. Chang, Second International Conference on Global Warming and Aerosol Workshop, Santa Fe, NM, July 17th -21st, 2006.

Revenge of the flux capacitor or Can bad science in movies actually be good for America, **K.B. Aptowicz**, Colloquium Presentation, West Chester University, West Chester, PA, April 20th, 2006.

2005 *Angularly-resolved elastic light scattering: pattern complexity and feature extraction*, **K.B. Aptowicz**, G. Fernandes, and R.K. Chang, NATO Advanced Research Workshop: "Optics of Biological Particles," Novosibirsk, Russia, 3rd-6th October 2005.

Angularly-Resolved Elastic Light Scattering Patterns of Atmospheric Aerosol Particles, **K.B. Aptowicz**, Y.L. Pan, R.K. Chang, R.G. Pinnick, and S.C. Hill, 2005 Scientific Conference on Obscuration and Aerosol Research, U.S. Army Edgewood Chemical Biological Center, Aberdeen Proving Ground, MD, 20th-22nd June 2005.

2004 *Characterizing aerosol particle morphology using elastic light scattering*, **K.B. Aptowicz**, Y. Pan, R.K. Chang, SPIE European Symposium on Optics/Photonics in Security & Defense, London, England, 25th-28th October 2004.

Two-Angular Optical Scattering from Non-Spherical Particles: Experimental Review **K.B. Aptowicz** and R.K. Chang, Light, Dust, and Chemical Evolution, Gerace, Italy, 26th-30th September 2004.

Elastic light scattering and laser-induced fluorescence, optical techniques for bio-aerosol enrichment, **K.B. Aptowicz** and R.K. Chang, Seminar Talk, Sandia National Laboratories, Livermore, CA, 29th June 2004.

Two-dimensional angular optical scattering (TAOS) of single aerosol particles in the visible and mid-infrared, **K.B. Aptowicz**, Y.L. Pan, and R.K. Chang, 2004 Scientific Conference on Obscuration and Aerosol Research, U.S. Army Edgewood Chemical Biological Center, Aberdeen Proving Ground, MD, 21st-25th June 2004 .

Large angle two-dimensional angular optical scattering (LA TAOS) in the mid-infrared of single aerosol particles, **K.B. Aptowicz**, Y.L. Pan, R.K. Chang, and B.V. Bronk, 2nd Joint Conference on Point Detection for Chemical and Biological Defense, Williamsburg, VA, 1st-5th March 2004.

2003 *Two-dimensional angular optical scattering patterns in the mid-infrared of microdroplets: on and off absorption*, **K.B. Aptowicz**, Y.L. Pan, R.K. Chang, R.G. Pinnick, S.C. Hill, K. Gurton, R.L. Tober, and B.V. Bronk, 2003 Joint Service Scientific Conference on Chemical & Biological Defense Research, Towson, MD, 17th-20th November 2003.

Two-dimensional angular optical scattering patterns of aerosol particles in the mid-infrared: measurements designed to obtain particle absorption, **K.B. Aptowicz**, Y.L. Pan, R. K. Chang, R.G. Pinnick, S.C. Hill, K. Gurton, R.L. Tober, and B.V. Bronk, 2003 SPIE Photonics East, Providence, RI, 27th-31st October 2003.

S E R V I C E

Professional Service	Co-hosted episodes of Chemists in the Kitchen (National Academy of the Sciences)	2022-current
	APSCUF Ad-hoc Committee work	2023-current
	Publication Referee for <i>American Journal of Physics</i> , <i>JQSRT</i> , <i>Aerosol Science & Technology</i> , <i>JOSA A</i> , <i>Optics Express</i> , <i>Applied Optics</i>	Ongoing
	Proposal Reviewer, Petroleum Research Fund, American Chemical Society	2013, 2019
	External Reviewer for Site Review, U.S. Department of Energy	June 10 th – 11 th 2015
	Proposal Review Panel, National Science Foundation	Spring, 2014
	Proposal Reviewer, U.S Army Research Office	Winter, 2014
	External Reviewer for Site Review, U.S. Department of Energy	June 22 nd 2013
	Proposal Review Panel, National Science Foundation	Winter, 2013
	External Examiner, Swarthmore College Honors Program	May 17 th – 19 th 2012
	External Reviewer for Site Review, U.S. Department of Energy	May 12 th 2010
	External Examiner, Swarthmore College Honors Program	May 22 nd – 23 rd 2009
University Service	Member, Council of Undergraduate Research	Fall 2013 – Spring 2016
	Member, General Education Advisory Board	Fall 2013 – Summer 2015
	Member, Women's Studies Steering Committee	Spring 2009 – Spring 2012
	Co-organizer, Engineering Feasibility Study	2012-2013
	Presenter, Understanding Privilege Project	Spring 2012
	Member, Middle-State Accreditation Preparation,	Summer 2009 – Fall 2010
	Co-Chair, CAPC Ad-Hoc Committee	Fall 2008 – Spring 2009
College Service	Student Marshall for Commencement	December 2006
	Co-director, Center for STEM Inclusion	Fall 2021 – Spring 2024
	Co-organizer, All Science Poster Session	Spring 2007 – Spring 2010
	Member, CAS Assessment Advisory Board	2008 – 2010
Departmental Service	Member, Ad-Hoc Committee Exploring Interdepartmental Astronomy	Spring 2009
	Member, CAS Outstanding Student Committee	2007 – 2008
	Assistant Chair	Summer 2023 - Present
	Member, Curriculum Committee	2019 – Fall 2024
	Chair or Member of Faculty Evaluation Committees	Ongoing
	Advisor, Pre-Engineering Advisor	Fall 2005 – Present
	Member, Search Committee for BME faculty member	2018-19, 2019-20
	Interim Chair, Department of Physics and Engineering	Fall 2018
	Chair, BME Director Search Committee	2017-2018
	Member, Recruitment Committee	Fall 2005 – Fall 2015
	Assessment Coordinator, Department of Physics	Summer 2006 – Spring 2012
	Organizer, QUIC/SRIS evaluations for entire department	Spring 2008 – Spring 2012
	Webmaster, Department of Physics	Summer 2006 – Summer 2010
	Chair, Faculty Search Committee	2007-2008
	Member, Faculty Search Committee	Spring 2006 and 2007