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Associate Professor

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EDUCATION

- 2010 **Sabbatical** University of Toronto (*Two-dimensional electronic laser spectroscopy*)
(Host: G. D. Scholes, Physical Chemistry)
- 1998 **PostDoc** Georgia Institute of Technology (*Nanoscience and laser spectroscopy*)
(Supervisor: M. A. El-Sayed, Physical Chemistry)
- 1997 **Ph.D.** University of Basel (*Photochemistry and laser spectroscopy*), Switzerland
(Advisor: H.-J. Wirz, Physical Chemistry)
- 1994 **Internship** University of Basel (*Biochemistry*), Switzerland
(Advisor: G. Schatz, Biochemistry)
- 1993 **Diploma** University of Basel (*ESR and ENDOR investigations of azulene radical anions*), Switzerland
(Advisor: F. Gerson, Physical Chemistry)

APPOINTMENTS

- Spring 2010 **Visiting Professor**, Department of Chemistry, University of Toronto, ON, CANADA
- 2008-present **Secondary Appointment**, Department of Materials Science and Engineering, Case Western Reserve University, Cleveland, OH
- 2006-present **Associate Professor**, Department of Chemistry, Case Western Reserve University, Cleveland, OH
- Nanostructured materials for photocatalytic, photovoltaic and thermoelectric applications
 - Nanoparticles for phototherapy and bioimaging applications
- 2001-2006 **Assistant Professor**, Department of Chemistry, Case Western Reserve University, Cleveland, OH
- Laser spectroscopic analytical techniques for studying nanomaterials
 - Novel nanoparticles and nanocomposites for sensor applications
- 1998-2000 **Associate Director**, Laser Dynamics Laboratory, School of Chemistry and Biochemistry, Georgia Institute of Technology, Atlanta, GA

PRINCIPAL ACTIVITIES

- 2005.06-2009 **Director**, Analytical Core Facility for Inorganic Nanoparticles, Case Western Reserve University, Cleveland, OH
- 2003.03-present **Co-Director**, Center for Chemical Dynamics (CCD), Case Western Reserve University, Cleveland, OH

AWARDS AND HONORS

- 2010 Invited for Feature Article for Materials Chemistry
 2010 Conference Co-Chair, Fluorescent Probes in Biophysics and Chemistry, ACS Spring Meeting, San Francisco, CA
 2009 Publication chosen as FEATURE and COVER PAPER in Langmuir (Publications # 83)
 2009 Publication selected as HOT PAPER in Angewandte Chemie (Publications # 80)
 2008 Gerhard Closs Student Award - Inter-American Photochemical Society (Best Ph.D. Thesis in Photosciences – Smita Dayal)
 2008 Innovations in Photobiology Award, American Society for Photobiology
 2007 Invited Feature Presentation at Gordon Research Conference for Photochemistry
 2005 ACS Award for Most Accessed Article in 2005 (Paper number 49 in publication list)
 2005 Conference Co-Chair, Physical Chemistry of Interfaces and Nanomaterials IV, SPIE
 2004 Faculty Member of the Case Comprehensive Cancer Center, University Hospitals, Cleveland, OH.
 2004 Selected Panelist, National Academies of Science, Keck Futures Nano Conference
 2004 Nominated for Wittke Award for Excellence in Undergraduate Teaching
 2003 NSF-Career Award
 2003 Glennan Fellowship Teaching Award
 1997 DAAD Postdoctoral Fellowship
 1997 Honors (Magna Cum Laude) for Ph.D. thesis at University of Basel, Switzerland

PROFESSIONAL AFFILIATIONS

- 1998-present Inter-American Photochemical Society
 1996-present American Chemical Society
 1995-present European Photochemical Society

FUNDING HISTORY

<i>Funding Source:</i>	<i>Title – Amount – year – (role)</i>		
Presidential Research Initiative (PRI): Nanoheterostructures as Rectifiers	\$ 50 K	2001	(PI)
NSF-MSP: Revitalizing Cleveland's Municipal School District	\$ 4 M	2002-2007	(co-Investigator)
Own contribution: Summer workshops and school visits			
NIH-Pilot Grant: Nanoparticles for Imaging of Breast Cancer	\$ 75 K	2002	(PI)
Provost Opportunity Fund: Center for Chemical Dynamics	\$ 350 K	5/2003-06/2005	(co-PI)
NSF-Career: Study and Control of the Optoelectronic Properties of Ternary Semiconductor Nanomaterials	\$ 588 K	8/2003-07/2010	(PI)
ACS-PRF G: Main Group Element n-Doped TiO ₂ Nanoparticles for Visible Light Photocatalysis	\$ 35 K	9/2003-08/2005	(PI)
PRI: Thermoelectric Nanomaterials	\$ 50 K	03/2004-03-2005	(PI)

State of OHIO – Biomedical Research Technology Transfer: Targeted Nanoparticles for Imaging and Therapy	\$ 4M	2005-2009		(co-Invest.)
	Own part: \$ 500 K			
NIH R01: Photodynamic Therapy: Mechanistic Studies	\$ 1M	07/2005-06/2009		(co-Invest.)
	(own part: \$ 200 K)			
NSF: Purchase of Ultrafast Optical Spectroscopy Instrumentation	\$ 418,153	2005		(co-PI)
ACS-PRF E: Funding SPIE Conference on Nanostructures and Interfaces	\$ 3,600	2005		(PI)
ACS-PRF C: Sonoelectrochemical Approach towards Nanostructures	\$ 80 K	2005-2007		(PI)
PRI: In vivo QD imaging	\$ 100 K	2006-2007		(co-PI)
NSF – NIRT: Activated Nanostructures for Renewable Energy	\$ 800 K	2006-2011		(co-PI)
	(own part: \$ 160 K)			
NIH-R01: Nanoparticle-based PDT	\$ 1.25 M	2010-2014	Pending	(3 PIs)
	(own part: \$ 350 K)			(Reviewed with 2%-ile, Funding expected for Dec. 2010)
NSF: Nanostructured Solar Cells	\$ 608 K	2011-2013	Pending	(PI)
NSF – NIRT: Activated Nanostructures for Renewable Energy	\$ 800 K	2011-2016	Pending	(co-PI)
	(own part: \$ 200 K)			
Saint-Gobain Incorporation: Quantum Dot Materials	\$ 100 K	2011-2012	Pending	(PI)

PATENT APPLICATIONS

- (1) **Burda, C.**; Strowbridge, B. "Photoelectric activation of neurons using nanostructured semiconductors". **(2010)**.
- (2) **Burda, C.** "Preparation of titanium dioxide nanoparticles doped with nonmetals and photocatalytic degradation of azo dyes". *U.S. Pat. Appl. Publ.* **(2006)**, 54pp.
- (3) **Burda, C.** "Nanoparticles and methods of manufacturing nanoparticles for electronic and non-electronic applications." *U.S. Pat. Appl. Publ.* **(2006)**, 33pp.

PEER-REVIEWED PUBLICATIONS**2010:**

- (93) Lo, S. S.; Mirkovic, T.; Chuang, C. H.; **Burda, C.**; Scholes, G. D.* " Emergent Properties Resulting from Type-II Band Alignment in Semiconductor Nanoheterostructures", *Adv. Mat.* In print.
- (92) Chuang, C. H.; Lo, S. S.; Scholes, G. D.*; **Burda, C.*** "Charge Separation and Recombination in CdTe/CdSe Core/Shell Nanocrystals as a Function of Shell Thickness: Probing the Quasi Type-II Regime", *J. Phys. Chem. Lett.*, accepted.
- (91) Ji, Y.; Lin, K.; Zheng, H.; Liu, C.-C.; Dudik, L.; Zhu, J.-J.*; **Burda, C.*** "Solar-Light Photocatalytic Properties of TiO₂ Nanoporous Thin Films" (2010), submitted.
- (90) Cheng, Y.; Meyers, J. D.; Broome, A.-M. Kenney, M. E.; Basilion, J. P.; **Burda, C.*** "In Vivo Study of a Non-covalent PDT Cancer Drug-Gold Nanoparticle Conjugate: Circulation, Release and Clearance", submitted.
- (89) Doane, T.; Cheng, Y.; Babar, A.; Hill, R.*; **Burda, C.*** "Electrophoretic Mobilities of PEGylated Gold NPs", submitted.
- (88) Li, J.; Mao, B.; Gole, J. G.*; **Burda, C.*** "Visible-light-driven Reversible and Switchable Hydrophobic to Hydrophilic Nitrogen-doped Titania Surfaces: Correlation with Photocatalysis", *Nanoscale* (2010), accepted.
- (87) Zhao, Y.; Dyck, J. S.*; Hernandez, B. M.; **Burda, C.*** "Improving Thermoelectric Properties of Chemically Synthesized Bi₂Te₃-Based Nanocrystals by Annealing." *J. Phys. Chem. C* (2010), 114(26), 11607-11613.
- (86) Liang, G.-X.; Li, L.-L.; Liu, H.-Y.; Zhang, J.-R.; **Burda, C.***; Zhu, J.-J.* "Fabrication of Near-infrared-emitting CdSeTe/ZnS Core/shell Quantum Dots and their Electrogenerated Chemiluminescence." *Chem. Com.* (2010), 46(17), 2974-2976.
- (85) Zhao, Y.; Dyck, J.S.*; Hernandez, B.M.; **Burda, C.*** "Enhancing Thermoelectric Performance of Ternary Nanocrystals Through Adjusting Carrier Concentration." *J. Am. Chem. Soc.* (2010), 132(14), 4982-4983.
- (84) Qiu, X.; Zhao, Yixin; S., Ian M.; Dyck, J. S.*; **Burda, C.*** "Improvement of the Thermoelectric Power Factor through Anisotropic Growth of Nanostructured PbSe Thin Films." *Dalton Trans.* (2010), 39(4), 1095-1100.
- (83)* Cheng, Y.; Samia, A. C.; Li, J.; Kenney, M. E.*; Resnick, A.*; **Burda, C.*** "Delivery and Efficacy of a Cancer Drug as a Function of the Bond to the Gold Nanoparticle Surface." *Langmuir* (2010), 26(4), 2248-2255. **(Selected as Cover Page and Feature Article)**
- (82) Cheng, Y., **Burda, C.**, Bookchapter: Nanoparticles for Photodynamic Therapy, Elsevier, London, 2010.

2009:

- (81) Zhao, Y.; **Burda, C.*** "Chemical Synthesis of Bi_{0.5}Sb_{1.5}Te₃ Nanocrystals and Their Surface Oxidation Properties." *ACS Appl. Mater. Interfaces* (2009), 1(6), 1259-1263.
- (80) Zhao, Y.; Larimer, P.; Pressler, R. T.; Strowbridge, B. W.*; **Burda, C.*** "Wireless activation of neurons in brain slices using nanostructured semiconductor photoelectrodes." *Angew. Chem. Int. Ed.* (2009), 48(13), 2407-2410. **(Selected as "Hot Paper")**

- (79)* Zhao, Y.; Pan, H.; Lou, Y.; Qiu, X.; Zhu, J.*; **Burda, C.*** "Plasmonic Cu_{2-x}S Nanocrystals: Optical and Structural Properties of Copper-Deficient Copper(I) Sulfides." *J. Am. Chem. Soc.* (2009), 131(12), 4253-4261.

2008:

- (78) Mao, Changjie; Zhao, Yixin; Qiu, Xiaofeng; Zhu, Junjie,* **Burda, C.*** "Synthesis, characterization and computational study of nitrogen-doped CeO₂ nanoparticles with visible-light activity." *Phys. Chem. Chem. Phys.* (2008), 10(36), 5633-5638.
- (77)* Cheng, Y.; Samia, A.C.; Meyers, J.D.; Panagopoulos, I.; Fei, B.; **Burda, C.*** "Highly Efficient Drug Delivery with Gold Nanoparticle Vectors for in Vivo Photodynamic Therapy of Cancer." *J. Am. Chem. Soc.* (2008), 130(32), 10643-10647.
- (76) Rodriguez, M.E.; Azizuddin, K.; Zhang, P.; Chiu, S.-m.; Lam, M.; Kenney, M. E.; **Burda, C.**; Oleinick, L. "Targeting of mitochondria by 10-N-alkyl acridine orange analogues: Role of alkyl chain length in determining cellular uptake and localization." *Mitochondrion* (2008), 8(3), 237-246.
- (75) Dayal, S.; **Burda, C.*** "One- and two-photon induced QD-based energy transfer and the influence of multiple QD excitations." *Photochem. Photobiol. Sci.* (2008), 7(5), 605-613.
- (74) Chen, X.; **Burda, C.*** "The Electronic Origin of the Visible-Light Absorption Properties of C-, N- and S-Doped TiO₂ Nanomaterials." *J. Am. Chem. Soc.* (2008), 130(15), 5018-5019.
- (73) Zhao, Y.; Qiu, X.; **Burda, C.*** "The Effects of Sintering on the Photocatalytic Activity of N-Doped TiO₂ Nanoparticles." *Chem. Mater.* (2008), 20(8), 2629-2636.
- (72) Clouser, S.; Samia, A. C. S.; Navok, E.; Alred, J.; **Burda, C.*** "Visible-light Photodegradation of Higher Molecular Weight Organics on N-doped TiO₂ Nanostructured Thin Films." *Top. Catal.* (2008), 47(1-2), 42-48.
- (71) Hostler, S. R.; Qu, Y. Q.; Demko, M. T.; Abramson, A. R.; Qiu, X.; **Burda, C.*** "Thermoelectric properties of pressed bismuth nanoparticles." *Superlattices Microstruct.* (2008), 43(3), 195-207.
- (70) Dayal, S.; **Burda, C.*** "Semiconductor Quantum Dots as Two-Photon Sensitizers." *J. Am. Chem. Soc.* (2008), 130(10), 2890-2891.
- (69) Solntsev, K. M.; Poizat, O.; Dong, J.; Rehault, J.; Lou, Y.; **Burda, C.**; Tolbert, L. M. "Meta and Para Effects in the Ultrafast Excited-State Dynamics of the Green Fluorescent Protein Chromophores." *J. Phys. Chem. B* (2008), 112(9), 2700-2711.

2007:

- (68) Dayal, S.; Li, J.; Li, Y.-S.; Wu, H.; Samia, A. C. S.; Kenney, M. E.; **Burda, C.*** "Effect of the Functionalization of the Axial Phthalocyanine Ligands on the Energy Transfer in QD-based Donor-Acceptor Pairs". *Photochem. Photobiol.*, (2007), 84(1), 243-249.
- (67) Qiu, X.; Zhao, Y.; **Burda, C.*** "Synthesis and Characterization of Nitrogen-doped Group-IVB Visible-light Photoactive Metal Oxide Nanoparticles". *Adv. Mater.*, (2007), 19, 3995-3999.
- (66) Qiu, X.; **Burda, C.*** "Chemically Synthesized Nitrogen-doped Metal Oxide Nanoparticles". *Chem. Phys.* (2007), 339(1-3), 1-10.

- (65) Liu, Y.; Li, J.; Qiu, X.; **Burda, C.*** "Bactericidal activity of nitrogen-doped metal oxide nanocatalysts and the influence of bacterial extracellular polymeric substances (EPS)". *J. Photochem. Photobiol. A* (2007), 190(1), 94-100.
- (64) Speer, K. M.; Neudeck, P. G.; Crimp, M. A.; **Burda, C.**; Pirouz, P. "Possible formation mechanisms for surface defects observed in heteroepitaxially grown 3C-SiC". *Phys. Stat. Sol. A* (2007), 204(7), 2216-2221.
- (63) Liu, B.; Ren, T.; Zhang, J.-R.; Chen, H.-Y.; Zhu, J.-J.; **Burda, C.*** "Spectroelectrochemistry of hollow spherical CdSe quantum dot assemblies in water" *Electrochem. Commun.* (2007), 9, 551-557.
- (62) Dayal, S.; **Burda, C.*** "Surface Effects on Quantum Dot-Based Energy Transfer". *J. Am. Chem. Soc.* (2007), 129(25): 7977-7981.

2006:

- (61) Liu, Y.; Li, J.;* Qiu, X.; **Burda, C.*** "Novel TiO₂ nanocatalysts for wastewater purification: tapping energy from the sun". *Water Sci. Technol.* (2006), 54, 47-54.
- (60) Dayal, S.; Lou, Y.; Samia, A.C.S.; Berlin, J.C.; Kenney, M.E.; **Burda C.*** "Observation of Non-Förster Type Energy Transfer Behavior in Quantum Dot-Phthalocyanine Conjugates." *J. Am. Chem. Soc.* (2006), 128, 13974-13975.
- (59) Qiu, X.; Dyck, J.; **Burda, C.*** "Nanostructured Bi₂Se₃ Films and Their Thermoelectric Transport Properties." *Angew. Chem. Intl. Ed.*, (2006), 45, 5656-5659.
- (58) Dayal, S.; Królicki, R.; Lou, Y.; Qiu, X.; Berlin, J.C.; Kenney, M.E.; **Burda C.*** "Femtosecond time-resolved resonance energy transfer from CdSe nanoparticles to phthalocyanines." *Appl. Phys. B* (2006), 84(1-2), 309-315.
- (57) Samia, A.C.S.; Dayal, S.; **Burda, C.*** "Quantum Dot Based-Energy Transfer: Perspectives and Potential Applications in Photodynamic Therapy." *Photochem. Photobiol.* (2006), 82, 617-625.
- (56) Chen, X.; Halasz, S.M.; Giles, E.C.; Mankus, J.V.; Johnson, J.C.; **Burda, C.*** "A simple parallel photochemical reactor for photodecomposition studies." *J. Chem. Educ.* (2006), 83(2), 265-267.

2005:

- (55) Qiu, X.; Lou, Y.; Samia, A.C.S.; Anandos, H.; Burgess, J.; Dayal, S.; **Burda, C.*** "PbTe Nanorods via Sonoelectrochemistry." *Angew. Chem. Intl. Ed.*, (2005), 44(36), 5855-5857.
- (54) Yin, M.; Wu, C.-K.; Lou, Y.; **Burda, C.**; Koberstein, J.T.; Zhu, Y.; O'Brien, S. "Copper Oxide Nanocrystals." *J. Am. Chem. Soc.* (2005), 127(26), 9506-9511.
- (53) Liu, Y.; Chen, X.; Li, J.; **Burda, C.*** "Photocatalytic degradation of azo dyes by nitrogen doped TiO₂ nanocatalysts." *Chemosphere*, (2005), 61(1), 11-18.
- (52) Dayal S.; Krolicki R.; **Burda, C.*** "Evaluation of Quantum Dots for Photodynamic Therapy." *SPIE-Proceedings*, (2005), 5705 (Nanobiophotonics and Biomedical Applications II), 247-254.
- (51) Lou, Y.; Yin, M.; O'Brien, S.; **Burda, C.*** "Electron-Hole Pair Relaxation Dynamics in Binary Copper-Based Semiconductor Quantum Dots." *J. Electrochem. Soc.* (2005), 152(6), G427-31.
- (50) He, Y. P.; Miao, Y. M.; Li, C. R.; Wang, S. Q.; Cao, L.; Xie, S. S.; Yang, G. Z.; Zou, B. S.; **Burda, C.** "Size and structure effect on optical transitions of iron oxide nanocrystals." *Phys. Rev. B* (2005), 71(12), 125411/1-125411/9.

- (49) **Burda, C.***; Chen, X.; Narayanan, R.; El-Sayed, M.A. "The Chemistry and Properties of Nanocrystals of Different Shapes." *Chem. Rev.* (2005), 105(5),1869-1915.
- (48) Gole, J. L.; **Burda, C.**; Wang, Z. L.; White, M. "Unusual properties and reactivity at the nanoscale." *J. Phys. Chem. Solids* (2005), 66(2-4), 546-550.
- (47) Prokes, S. M.; Gole, J. L.; Chen, X.; **Burda, C.**; Carlos, W. E. "Defect-related optical behavior in surface-modified TiO₂ nanostructures." *Adv. Funct. Mater.* (2005), 15(1), 161-167.
- (46) Chen, X.; Lou, Y.; Samia, A. C. S.; **Burda, C.***; Gole, J. L. "Formation of oxynitride as the photocatalytic enhancing site in nitrogen-doped titania nanocatalysts: comparison to a commercial nanopowder." *Adv. Funct. Mater.* (2005), 15(1), 41-49.
- (45) Chen, X.; Samia, A.C.S.; Lou, Y.; **Burda, C.*** "Investigation of the Crystallization Process in 2 nm CdSe Quantum Dots." *J. Am. Chem. Soc.* (2005), 127(12), 4372-4375.

2004:

- (44) Qiu, X.; **Burda, C.***; Fu, R.; Pu, L.; Chen, H.; Zhu, J. "Heterostructured Bi₂Se₃ Nanowires with Periodic Phase Boundaries." *J. Am. Chem. Soc.* (2004), 126(50),16276-16277.
- (43) Chen, X.; **Burda, C.*** "Photoelectron Spectroscopic Investigation of Nitrogen-Doped Titania Nanoparticles." *J. Phys. Chem. B* (2004), 108(40), 15446-15449.
- (42) Gole, J. L.; **Burda, C.**; Fedorov, A.; Prokes, S. M. "Highly efficient formation of TiO_{2-x}N_x-based photocatalysts - potential applications for active sites in microreactors, sensors, and photovoltaics." *Mater. Res. Soc. Symp. Proc.* (2004), 789, 311-315.
- (41) Samia, A. C. S.; Lou, Y.; **Burda, C.***; Senter, R. A.; Coffer, J. L. "Effect of the erbium dopant architecture on the femtosecond relaxation dynamics of silicon nanocrystals." *J. Chem. Phys.* (2004), 120(18), 8716-8723.
- (40) Gole, J. L.; White, M.; Fedorov, A.; **Burda, C.** "Efficient formation of active silica and doped and metal seeded titania for visible light tunable photocatalysis: Application to microreactors, solar cells, and sensors." *Advanced Materials for Energy Conversion* (2004), 69-78.
- (39) Gole, J.; **Burda, C.**; Fedorov, A.; White, M. "Enhanced reactivity and phase transformation at the nanoscale: efficient formation of active silica and doped and metal seeded TiO_{2-x}N_x photocatalysts." *Reviews on Advanced Materials Science* (2003), 5(4), 265-269.
- (38) Chen, X.; Lou, Y.; **Burda, C.*** "Spectroscopic investigation of II-VI core-shell nanoparticles: CdSe/CdS." *Int. J. Nanotech.* (2004), 1(1/2), 105-118.
- (37) Gole, J. L.; Stout, J. D.; **Burda, C.***; Lou, Y.; Chen, X. "Highly Efficient Formation of Visible Light Tunable TiO_{2-x}N_x Photocatalysts and Their Transformation at the Nanoscale." *J. Phys. Chem. B*, (2004), 108(4), 1230-1240.
- (36) Samia, A.C.S.; Cody, J.; Fahrni, C.; **Burda, C.*** "The Effect of Ligand Constraints on the MLCT Relaxation Dynamics of Copper(I) Phenanthroline Complexes: A Comparative Study by Femtosecond Time-resolved Spectroscopy." *J.Phys.Chem B* (2004), 108(2), 563-569.

2003:

- (35) Samia, A. C. S.; Chen, X.; **Burda, C.*** "Semiconductor Quantum Dots for Photodynamic Therapy." *J. Am. Chem. Soc.* (2003), 125(51), 15736-15737.
- (34) Lou, Y.; Chen, X.; **Burda, C.*** "The Femtosecond Spectroscopic Investigation of the Carrier Lifetimes in Digenite Quantum Dots: Discrimination of the Electron and Hole

- Dynamics via Ultrafast Interfacial Electron Transfer." *J. Phys. Chem. B* (2003), 107(45), 12431-12437.
- (33) Morris, R.L.; Azizuddin, K.; Lam, M.; Berlin, J.; Nieminen, A.; Kenney, M.E.; Samia, A.C.S.; **Burda, C.**; Oleinick, N.L. "Fluorescence Resonance Energy Transfer reveals a binding site of a photosensitizer for Photodynamic Therapy." *Cancer Research* (2003), 63(17), 5194-5197.
- (32) **Burda, C.***; Lou, Y.; Chen, X.; Samia, A.C.S.; Stout, J.; Gole, J.L. "Enhanced Nitrogen Doping in TiO₂ Nanoparticles." *Nano Lett.* (2003), 3(8), 1049-1051.
- (31) Chen, X.; Lou, Y.; Samia, A.C.; **Burda, C.*** "Coherency Strain Effects on the Optical Response of Core/Shell Heteronanostructures." *Nano Lett.* (2003), 3(6), 799-803.
- (30) Chen X.; Lou Y.; **Burda, C.*** "Spectroscopic Characterization of II-VI Core-Shell Nanoparticles CdSe/CdS." *Int. J. Nanotech* (2003), 1.
- (29) Lou, Y.; Samia, A.C.S.; Cowen, J.; Banger, K.; Chen, X.; Lee, H.; **Burda, C.*** "Evaluation of the photoinduced electron relaxation dynamics of Cu_{1.8}S quantum dots." *Phys. Chem. Chem. Phys.* (2003), 5(6), 1091-1095.
- (28) Cody, J.; Dennisson, J.; Gilmore, J.; VanDerveer, D. G.; Henary, M. M.; Gabrielli, A.; Sherrill, C. D.*; Zhang, Y.; Pan, C.-P.; **Burda, C.**; Fahrni, C. J.* "X-ray Structures, Photophysical Characterization, and Computational Analysis of Geometrically Constrained Copper(I)-Phenanthroline Complexes." *Inorg. Chem* (2003), 42(16), 4918-4929.
- 2002:**
- (27) **Burda, C. ***; Samia, A.C.S.; Hathcock, D. J.; Huang, H.; Yang, S. "Experimental evidence for the photoisomerization of higher fullerenes." *J. Am. Chem. Soc.* (2002), 124(42), 12400-12401.
- (26) **Burda, C.**; Link, S.; Mohamed, M.; El-Sayed, M. "The pump power dependence of the femtosecond relaxation of CdSe nanoparticles observed in the spectral range from visible to infrared." *J. Chem. Phys.* (2002), 116(9), 3828-3833.
- (25) Braun, M.; Link, S.; **Burda, C.**; El-Sayed, M. "Determination of the localization times of electrons and holes in the HgS well in a CdS/HgS/CdS quantum dot-quantum well nanoparticle." *Phys. Rev. B* (2002), 66(20), 205312/1-205312/7.
- (24) Braun, M.; Link, S.; **Burda, C.**; El-Sayed, M. "Transfer times of electrons and holes across the interface in CdS/HgS/CdS quantum dot quantum well nanoparticles." *Chem. Phys. Lett.* (2002), 361(5,6), 446-452.
- (23) Nikoobakht, B.; **Burda, C.**; Braun, M.; Hun, M.; El-Sayed, M.A. "The quenching of CdSe quantum dots photoluminescence by gold nanoparticles in solution." *Photochem. Photobiol.* (2002), 75(6), 591-597.
- 2001:**
- (22) **Burda, C.**; Link, Stephan; Mohamed, M.; El-Sayed, M. "The Relaxation Pathways of CdSe Nanoparticles Monitored with Femtosecond Time-Resolution from the Visible to the IR: Assignment of the Transient Features by Carrier Quenching." *J. Phys. Chem. B* (2001), 105(49), 12286-12292.
- (21) Mohamed, M.B.; **Burda, C.**; El-Sayed, M.A. "Shape Dependent Ultrafast Relaxation Dynamics of CdSe Nanocrystals: Nanorods vs. Nanodots." *Nano Lett.* (2001), 1(11), 589-593.

- (20) Landes, C.; Braun, M.; **Burda, C.**; El-Sayed, M. A. "Observation of Large Changes in the Band Gap Absorption Energy of Small CdSe Nanoparticles Induced by the Adsorption of a Strong Hole Acceptor." *Nano Lett.* (2001), 1(11), 667-670.
- (19) Braun, M.; **Burda, C.**; Mohamed, M.; El-Sayed, M. "Femtosecond time-resolved electron-hole dynamics and radiative transitions in the double-layer quantum well of the CdS/(HgS)₂/CdS quantum-dot-quantum-well nanoparticle." *Phys. Rev. B* (2001), 64(3), 035317/1-035317/7.
- (18) Braun, M.; **Burda, C.**; El-Sayed, M.A. "Variation of the Thickness and Number of Wells in the CdS/HgS/CdS Quantum Dot Quantum Well System." *J. Phys. Chem. A* (2001), 105(23), 5548-5551.
- (17) Landes, C.; **Burda, C.**; Braun, M.; El-Sayed, M.A. "Photoluminescence of CdSe Nanoparticles in the Presence of a Hole Acceptor: n-Butylamine." *J. Phys. Chem. B* (2001), 105(15), 2981-2986.

2000:

- (16) **Burda, C.**; Abdel-Kader, M. H.; Link, S.; El-Sayed, M. A. "Femtosecond Dynamics of a Simple Merocyanine Dye: Does Deprotonation Compete with Isomerization?" *J. Am. Chem. Soc.* (2000), 122(28), 6720-6726.
- (15) **Burda, C.**; Green, T.; Landes, C.; Link, S.; Little, R.; Petroski, J.; El-Sayed, M. A. "Optical Spectroscopy of Nanophase Material." in *Characterization of Nanophase Materials*, Wiley-VCH, 2000, 197-241.
- (14) **Burda, C.**; El-Sayed, M. A. "High-density Femtosecond Transient Absorption Spectroscopy of Semiconductor Nanoparticles. A Tool to Investigate Surface Quality." *Pure & Appl. Chem.* (2000), 72(1-2), 165-177.
- (13) Link, S.; **Burda, C.**; Nikoobakht, B.; El-Sayed, M. A. "Laser-Induced Shape Changes of Colloidal Gold Nanorods Using Femtosecond and Nanosecond Laser Pulses." *J. Phys. Chem. B* (2000), 104(26), 6152-6163.
- (12) Wang, H.; **Burda, C.**; Persy, G.; Wirz, J. "Photochemistry of 1H-Benzotriazole in Aqueous Solution: A Photolabile Base." *J. Am. Chem. Soc.* (2000), 122(24), 5849-5855.
- (11) Link, S.; **Burda, C.**; Mohamed, M. B.; Nikoobakht, B.; El-Sayed, M. A. "Femtosecond transient-absorption dynamics of colloidal gold nanorods: Shape independence of the electron-phonon relaxation time." *Phys. Rev. B* (2000), 61(9), 6086-6090.

1999:

- (10) **Burda, C.**; Link, S.; Green, T. C.; El-Sayed, M. A.: "New Transient Absorption Observed in the Spectrum of Colloidal CdSe Nanoparticles Pumped with High-Power Femtosecond Pulses." *J. Phys. Chem. B* (1999), 103(49), 10775-10780.
- (9) **Burda, C.**; Green, T. C.; Link, S.; El-Sayed, M. A.: "Electron shuttling across interface of CdSe nanoparticles monitored by femtosecond laser spectroscopy." *J. Phys. Chem. B* (1999), 103 (11), 1783-1788.
- (8) Link, S.; **Burda, C.**; Nikoobakht, B.; El-Sayed, M. A. "How long does it take to melt a gold nanorod? A femtosecond pump-probe absorption spectroscopic study." *Chem. Phys. Lett.* (1999), 315 (1,2), 12-18.
- (7) **Burda, C.**; Link, S.; Green, T. C.; El-Sayed, M. A. "New Transient Absorption Observed in the Spectrum of Colloidal CdSe Nanoparticles Pumped with High-Power Femtosecond Pulses." *J. Phys. Chem. B* (1999), 103(49), 10775-10780.
- (6) Link, S.; **Burda, C.**; Wang, Z. L.; El-Sayed, M. A. "Electron dynamics in gold and gold-silver alloy nanoparticles: The influence of a nonequilibrium electron distribution and the

size dependence of the electron-phonon relaxation." *J. Chem. Phys.* (1999), 111(3), 1255-1264.

- (5) Link, S.; **Burda, C.**; Mohamed, M. B.; Nikoobakht, B.; El-Sayed, M. A. "Laser Photothermal Melting and Fragmentation of Gold Nanorods: Energy and Laser Pulse-Width Dependence." *J. Phys. Chem. A* (1999), 103(9), 1165-1170.

1998:

- (4) Little, R. B.; **Burda, C.**; Link, S.; Logunov, S.; El-Sayed, M. A. "Charge separation effects on the rate of nonradiative relaxation processes in quantum dots-quantum well heteronanostructures." *J. Phys. Chem. A* (1998), 102(33), 6581-6584.
- (3) Adam, W.; Borden, W.T.; **Burda, C.**; Foster, H.; Heidenfelder, T.; Heubes, M.; Hrovat, D.A.; Kita, F.; Lewis, S.B.; Scheutzw, D.; Wirz, J.. "Transient spectroscopy of a derivative of 2,2-difluoro-1,3-diphenylcyclopentane-1,3-diyl-a remarkably persistent localized singlet 1,3-diradical." *J. Am. Chem. Soc.* (1998), 120(3), 593-594.

1997:

- (2) Born, R.; **Burda, C.**; Senn, P.; Wirz, J. "Transient Absorption Spectra and Reaction Kinetics of Singlet Phenylnitrene and Its 2,4,6-Tribromo Derivative in Solution." *J. Am. Chem. Soc.* (1997), 119(21), 5061-5062.

1994:

- (1) Bachmann, R.; **Burda, C.**; Gerson, F.; Scholz, M.; Hansen, H. "Radical anions of polyalkylazulenes: an ESR and ENDOR study." *Helv. Chim. Acta* (1994), 77(5), 1458-65.

Further Classification

INVITED REVIEWS:

- (94) Lo, S. S.; Mirkovic, T.; Chuang, C. H.; **Burda, C.**; Scholes, G. D.* " Emergent Properties Resulting from Type-II Band Alignment in Semiconductor Nanoheterostructures", *Adv. Mat.* accepted.
- (66) Qiu, X.; **Burda, C.*** "Chemically Synthesized Nitrogen-doped Metal Oxide Nanoparticles". *Chem. Phys.* (2007), 339(1-3), 1-10.
- (57) Samia, A.C.S.; Dayal, S.; **Burda, C.*** "Quantum Dot Based-Energy Transfer: Perspectives and Potential Applications in Photodynamic Therapy." *Photochem. Photobiol.* (2006), 82, 617-625.
- (49) **Burda, C.***; Chen, X; Narayanan, R.; El-Sayed, M.A. "The Chemistry and Properties of Nanocrystals of Different Shapes." *Chem. Rev.* (2005), 105(5),1869-1915.
- (48) Gole, J. L.; **Burda, C.**; Wang, Z. L.; White, M. "Unusual properties and reactivity at the nanoscale." *J. Phys. Chem. Solids* (2005), 66(2-4), 546-550.

BOOK:

Burda, Clemens; Ellingson, Randy J.; Editors. Physical Chemistry of Interfaces and Nanomaterials IV. (Proceedings of the International Conference held 2-4 August 2005 in San Diego, California.) [In: Proc. SPIE-Int. Soc. Opt. Eng.; 2005, 5929].

BOOK CHAPTERS:

- (83) Cheng, Y., **Burda, C.**, Bookchapter: Nanoparticles for Photodynamic Therapy, Elsevier, London, 2010.
- (15) **Burda, C.**; Green, T.; Landes, C.; Link, S.; Little, R.; Petroski, J.; El-Sayed, M. A. "Optical Spectroscopy of Nanophase Material." in *Characterization of Nanophase Materials*, Wiley-VCH, 2000, 197-241.

BOOK REVIEW:

Burda, C. Metallic Nanomaterials. Edited by Challa S. S. R. Kumar. *Journal of the American Chemical Society* (2009), 131(18), 6642.

CONFERENCE PROCEEDINGS:

- (52) Dayal S.; Krolicki R.; **Burda, C.*** "Evaluation of Quantum Dots for Photodynamic Therapy." *SPIE-Proceedings*, (2005), 5705 (Nanobiophotonics and Biomedical Applications II), 247-254.
- (42) Gole, J. L.; **Burda, C.**; Fedorov, A.; Prokes, S. M. "Highly efficient formation of $\text{TiO}_{2-x}\text{N}_x$ -based photocatalysts - potential applications for active sites in microreactors, sensors, and photovoltaics." *Mater. Res. Soc. Symp. Proc.* (2004), 789, 311-315.

SEMINARS AND TALKS

- 2010.10 Invited Talk, Nanomedicine Summit, Cleveland, OH
- 2010.10 Invited Talk, Natl. APS Meeting, Rochester, NY
- 2010.06 Biomedical Eng. Department, University of Toronto, ON, CANADA
- 2010.03 Invited Talk, Natl. ACS Meeting, San Francisco, CA
- 2009.08 Chemistry Department, University of Toronto, ON, CANADA
- 2009.04 Biomed. Eng. Department, McMasters University, Hamilton, ON, CANADA
- 2009.04 Chemistry Department, University of Toledo, Toledo, OH
- 2009.03 Chemistry Department, University of Arkansas, Fayetteville, AR
- 2009.03 Chemistry Department, Rice University, Houston, TX
- 2009.02 Chemistry Department, Emory University, Atlanta, GA
- 2008.11 Invited Feature Talk, Electrochemical Society Meeting, Honolulu, HW
- 2008.10 Chemistry Department, Carnegie Mellon University, Pittsburgh, PA
- 2008.07 Invited Talk, Center for Nanoscale Materials, Argonne National Laboratory, IL
- 2008.06 Invited Feature (Award) Talk, Am. Soc. Photobiology Meeting, Burlingame, CA
- 2008.06 Invited Talk, CERMAC ACS Meeting, Columbus, OH
- 2008.05 Chemistry Department, Kenyon College, Gambier, OH
- 2008.04 Chemistry Department, Emory University, Atlanta, GA
- 2008.02 Chemistry Department, Southern Methodist University, Dallas, TX
- 2008.02 Chemistry Department, Texas Christian University, Fort Worth, TX
- 2008.01 Closs Award Presentation, Inter-American Photochemical Soc. Meeting, St. Petersburg, Tampa, FL
- 2007.11 Chemistry Department, Ohio State University, Columbus, OH
- 2007.08 Invited Talk, Natl. ACS Meeting, Boston, MA
- 2007.07 Feature Talk, Gordon Research Conference (Photochemistry), Smithfield, RI
- 2007.06 Department of Electrical Engineering, Case Western Reserve Univ., Cleveland, OH
- 2007.05 Invited Talk, Big Light IV Conference, Natl. High Magnetic Field Lab., Tallahassee, FL
- 2007.03 Invited Talk, Natl. ACS Meeting, Chicago, IL

2006.08 Department of Chemistry and Biochemistry, University of Notre Dame, IN
2006.08 Lecture Series, Department of Chemistry, Nanjing University, CHINA
2006.03 Invited Talk, Nat. ACS Meeting, Atlanta, GA
2006.03 Physics Department, Columbia University, New York, NY
2006.03 Invited Talk, APS Meeting, Baltimore, MD
2005.11 Invited Seminar at the Institute for Metallurgy, Cairo, EGYPT
2005.10 Invited Seminar at the Technical University of Vienna, AUSTRIA
2005.09 Chemistry Department, Western Michigan University, Kalamazoo, MI
2005.07 Program Chair, PHYSICAL CHEMISTRY OF INTERFACES AND NANO-MATERIALS IV (NP207), SPIE Optics & Photonics, San Diego, CA
2005.06 Materials Research Center, University of Chicago, Chicago, IL
2005.05 School of Chemistry and Biochemistry, Georgia Institute of Technology, Atlanta, GA
2005.03 Physics Department, University of Arizona, Phoenix, AZ
2005.03 Chemistry Department, Arizona State University, Tucson, AZ
2005.03 Invited Talk, ACS Meeting, San Diego, CA
2005.02 Chemistry and Biochemistry Department, University of Illinois, Urbana Champaign, IL
2005.01 Invited Talk, SPIE Photonics West Meeting, San Jose, CA
2004.12 Department of Chemistry, University of Basel, SWITZERLAND
2004.12 Department of Chemistry, University of Bern, SWITZERLAND
2004.11 Invited Talk, Latin American Photochemistry Meeting, La Plata, ARGENTINA
2004.11 Chemistry Department, Universidad Nacional BA, Buenos Aires, ARGENTINA
2004.11 Presentation, National Academies of Science-Keck Futures Meetings, Irvine, CA
2004.09 Presentation, National Academies of Science, Washington, DC
2004.08 Invited Talk, SPIE Annual Meeting, Denver, CO
2004.07 Invited Talk, SPIE Biophotonics Meeting, Cleveland, OH
2004.05 Invited Talk, Electrochemical Society Meeting, San Antonio, TX
2004.04 Invited Speaker and Panelist, ShowCase, CWRU, Cleveland, OH
2004.01 Chemistry Division, Argonne National Laboratory, Argonne, IL
2003.02 Chemistry Department, Bowling Green State University, Bowling Green, OH
2003.01 Chemistry Department, Wayne State University, Detroit, MI
2002.03 Chemistry Department, Cleveland State University, Cleveland, OH
2002.02 University Hospitals Cancer Center, CWRU, Cleveland, OH
2002.01 Materials Science Engineering Department, CWRU, Cleveland, OH
2001.09 Chemical Engineering Department, CWRU, Cleveland, OH
2001.08 Physics Department, CWRU, Cleveland, OH
2001.07 Invited Talk, Gordon Research Conference (Photochemistry), New London, CT
2000.10 Invited Talk, Nanoscience and Nanotechnology Conference, Atlanta, GA
2000.10 Contributed Talk, Internatl. Symp. on Small Particles & Inorganic Clusters, Atlanta, GA
2000.09 Chemistry Department, University of Cardiff, UNITED KINGDOM
2000.08 Contributed Talk, Nat. ACS Fall Meeting, Washington, DC
2000.04 Chemistry Department, University of Hamburg, Hamburg, GERMANY
1999.07 Invited Talk and Co-Chair, IUPAC Workshop on Advanced Materials, Hong Kong, CHINA
1998.11 Contributed Talk, MRS Fall Meeting, Boston, MA

TEACHING

2010/Fall Chem 310/410 Instrumental Analysis
 2010/Summer Chem 106: General Chemistry (3 Credit hours)
 2010/Spring Sabbatical at Chemistry Department, Univ. of Toronto, CANADA
 2009/Fall Chem 310/410 Instrumental Analysis
 2009/Summer Chem 106: General Chemistry (3 Credit hours)
 2009/Spring Lecture free due to double-load past fall
 2008/Fall FSNA 118 Nanotechnology SAGES Seminar Series,
 Chem 310/410 Instrumental Analysis
 2008/Summer Chem 106: General Chemistry (3 Credit hours)
 2008/Spring Chem 407: Graduate Level Thermodynamics and Statistical Mechanics
 (3 Credit hours)
 2007/Summer Chem 805: Advanced Chemistry by Inquiry IV (2 Credit hours)
 2007/Spring Chem 336: Physical Chemistry II (3 Credit hours)
 Chem 113: General Chemistry Laboratory (3 Credit hours)
 2006/Fall Chem 310/410: Instrumental Analytical Chemistry (3 Credit hours)
 Chem 304: Quantitative Analytical Chemistry Laboratory (ancillary)
 2006/Summer Chem 804: Advanced Chemistry by Inquiry III (2 Credit hours)
 2006/Spring Chem 407: Graduate Level Thermodynamics and Statistical Mechanics
 (3 Credit hours)
 Chem 113: General Chemistry Laboratory (3 Credit hours)
 2005/Fall Chem 310/410: Instrumental Analytical Chemistry (3 Credit hours)
 Chem 113: General Chemistry Laboratory (3 Credit hours)
 2005/Summer Chem 803: Advanced Chemistry by Inquiry II (2 Credit hours)
 2005/Spring Chem 450: Graduate Level Spectroscopy (3 Credit hours)
 Chem 113: General Chemistry Laboratory (3 Credit hours)
 2004/Fall Chem 335: Physical Chemistry I for BS Chemistry Majors (3 Credit hours)
 Chem 113: General Chemistry Laboratory (3 Credit hours)
 2004/Summer Chem 802: Advanced Chemistry by Inquiry I (2 Credit hours)
 2004/Spring Chem 407: Graduate Level Thermodynamics and Statistical Mechanics (3 Credit hours)
 Chem 113: General Chemistry Laboratory (3 Credit hours)
 2003/Fall Chem 335: Physical Chemistry I for BS Chemistry Majors (3 Credit hours)
 Chem 113: General Chemistry Laboratory (3 Credit hours)
 2003/Summer Chem 801: Chemistry for High School Teachers I (2 Credit hours)
 2003/Spring Chem 450: Graduate Level Spectroscopy (3 Credit hours)
 Chem 113: General Chemistry Laboratory (3 Credit hours)
 2002/Spring Chem 665: Graduate Colloquium (1 Credit hour)
 2001/Fall Chem 335: Physical Chemistry I for BS Chemistry Majors (3 Credit hours)
 Chem 113: General Chemistry Laboratory (3 Credit hours)
 2000/Summer Lecture Series: "Optical Properties of Semiconductor Nanoparticles" at Georgia
 Institute of Technology, Atlanta, GA

POSTDOCTORAL RESEARCH ASSOCIATES SUPERVISED

Dr. Chia-Pin Pan 2005-2006
 Dr. Robert Krolicki 2003-2005
 Dr. Ping Lu 2002
 Dr. Xiaoling He 2001-2002

Ph.D. STUDENTS SUPERVISED

Chi-Hung Chuang	2008-present
Tennyson Doane	2008-present
Baodong Mao	2007-present
Junwei Li	2007-present
Yu Cheng	2006-present
Yixin Zhao, Ph.D.	2005-2010
Xiaofeng Qiu, Ph.D.	2004-2008
Smita Dayal, Ph.D.	2004-2008
Yongbing Lou, Ph.D.	2001-2006
Xiaobo Chen, Ph.D.	2001-2005

Ph.D. STUDENT AWARDS

Yu Cheng:	2007 (ShowCase), 2008 (ShowCase), 2009 (ACS Meeting), 2010 (National ACS Meeting) Best Poster Awards
Smita Dayal:	2008 Closs Award for Best U.S. Ph.D. in Photochemistry 2007 Best Oral Presentation, Society for Applied Spectroscopy 2007 Outstanding Research Poster Award 2007 Outstanding Graduate Performance Merit Award
Xiaofeng Qiu:	2007 ShowCASE 1st Prize Poster Award 2007 Outstanding Graduate Performance Merit Award
Yongbing Lou:	2005 Outstanding Research Poster Award 2002 for Best Student Presentation at Regional ACS Meeting
Xiaobo Chen:	2005 Outstanding Graduate Performance Merit Award 2004 Outstanding Research Poster Award

UNDERGRADUATE STUDENTS SUPERVISED

Amir Babar	2009-present
Andrew Chomas	2009-present
Minjeong Kim	2007-2010 (Pharmacology Ph.D., OSU)
Christopher Kimes	2005-2007 (MD-Ph.D. Student)
Erik Navok	2004-2007 (Duracell)
Jared Allred	2005-2006 (Ph.D. Chemistry)
Eric Giles	2004-2007 (Ph.D. Chemistry)
Jessica Mankus	2003-2006 (Lives in France)
Sarah Halasz	2003-2006 (Science Editor)
Joseph Casey Johnson	2003-2005 (Ph.D. Case)
Jonathan Wheeler	2002 (Supervised Senior Capstone Project)
Robert Immormino	2002 (M.D. Student at Duke)

VISITING SCHOLARS SUPERVISED

Dr. Jeff Dyck (Sabbatical)	Fall 2007 John Carroll University, Cleveland, OH
Dr. Kyril Slontsev	Summer 2005 Georgia Institute of Technology, Atlanta, GA
Dr. Kyril Slontsev	Summer 2003 Georgia Institute of Technology, Atlanta, GA
Dr. Margozata Roszanowska	Summer 2002 University of Cardiff, United Kingdom
Dr. Alex Gusev	Summer 2001 Bowling Green State University, OH

SERVICE**Extramural Academic Services:**

- 2010 Organizer and Co-Chair of the Conference “Fluorescent Probes in Biophysics and Chemistry”, ACS National Meeting, San Francisco, March 21-25, 2010.
- 2005 Organizer, Co-Chair, and Proceedings Editor of the 2005 Conference on “Physical Chemistry of Interfaces and Nanomaterials IV”, SPIE Meeting, San Diego, CA
- 1999 Co-organizer IUPAC Workshop on Advance Materials, Hong Kong, China

University and Departmental Services:

- 2009-present Member, Steering Committee, Institute for Advanced Materials
- 2003-present Member, Nanotechnology Steering Committee, CASE
- 2002-2007 Chemistry Department Representative, NSF-MSP, CASE
- 2009-present Chair, Graduate Admissions Committee, Chemistry Department
- 2008-present Member, Executive Committee, Chemistry Department
- 2008-2009 Member, Grad. Affairs Committee, Chemistry Department
- 2008-present Member, Resources Committee, Chemistry Department
- 2005-2009 Director, BRTT *Analytical Core Facility for Inorg. Nanomaterials*, CASE
- 2004-present Member, CASE Comprehensive Cancer Center, CASE School of Medicine
- 2004-present Co-Founder, Cleveland NanoCrystals Inc. through CASE Technology Ventures
- 2003 Member, Graduate Studies Committee, Department of Chemistry, CASE
- 2002-present Co-Director, Center for Chemical Dynamics (CCD), CASE
- 2001-2008 Member, Undergraduate Recruiting Committee, Chemistry, CASE
- 2001-present Research Advisor for 22 chemistry undergraduate and graduate students, CASE
- 2001-present Academic advisor and mentor to numerous Case Undergraduate Students

K-12 and Community Outreach in Cleveland:

- 2003-present Outreach Spectroscopy Lectures/Shows to Cleveland High Schools
- 2003-present Talks in public libraries to children and parents on spectroscopy and nanoscience
- 2002-present Teaching & Course Development, Summer School for Cleveland High School Teachers (NSF-MSP)
- 2002-present High School Visits and Lectures on Nanoscience and Chemistry

Proposal Reviewer for:

NSF, ACS-PRF, DOE, DOD, NIH, Norwegian NSF, Canadian Foundation of Innovation, Singapore Science Foundation

Study Sections/Panel Reviewer for:

NSF, NIH/NANO, Austrian NSF

Editorial Review for Journals:

Editorial Board Member (since 2002): International Journal of Nanotechnology
Proceedings Reviewer and guest editor, SPIE-Optics and Photonics
Reviewer for Journal of the American Chemical Society, Nature, Journal of Physical Chemistry, Advanced Materials, Langmuir, Chemistry of Materials, Nano Letters, ACS NANO, Nanoscale, Analytical Chemistry, Inorganic Chemistry Communications, Advanced Interfaces & Materials, Langmuir, Journal of Luminescence, Photochemistry and Photobiology, Chemosphere, Angewandte Chemie Int. Ed., Small.