

PI, Nano-Bio Interface Laboratory
Department of Chemistry
Boston University
8 St. Mary's Street
Boston, Massachusetts 02215

T 617-353-8669 F 617-353-6466
E-mail: bmr@bu.edu

Employment:

2012 - present	Associate Professor, Boston University, Department of Chemistry
2008 - present	Faculty Member, The Photonics Center, Boston University
2007 - 2012	Assistant Professor, Boston University, Department of Chemistry
2004 - 2007	Postdoctoral Fellow at the University of California at Berkeley, Departments of Chemistry (with Prof. A. P. Alivisatos) and Physics (with Prof. J. Liphardt)

Qualifications:

2000-2003	Doctor rerum naturalium (Ph.D. equivalent) Department of Chemistry, Technical University Kaiserslautern, Germany Thesis: <i>Chemistry of Microsolvated Metal Ions</i> Advisor: Prof. G. Niedner-Schatteburg
1997-2000	Diploma (master equivalent) Department of Chemistry, Technical University Munich, Germany Thesis: <i>Investigation of hydrated electrons stored in an FT-ICR</i> Advisor: Prof. V. E. Bondybey
1995-1997	Intermediate Diploma (bachelor equivalent) Department of Chemistry, Bielefeld University, Germany

Distinctions:

2006	Assistant Professor, Nanobiotechnology, University of Southern Denmark (declined).
2006	Juan de la Cierva Award of the Spanish Ministry of Science and Innovation (declined).

Awards and Fellowships:

2010	National Science Foundation CAREER Award
2005	Deutsche Forschungsgemeinschaft (DFG) Research Scholarship Independent research scholarship of the German Science Council.
2004	Otto A. Wipprecht Foundation Fellowship Private foundation that supports research of German nationals abroad.
2004	Scholarship for the 51st Annual Western Spectroscopy Association Conference
1995	German Chemical Industry Award for Talented High School Graduate.

Funding and Grants:

Current

- 07/01/09-06/30/19 National Institutes of Health (NIH-NCI); Role: PI
R01 - “Illuminating Dynamic Receptor Clustering in the Epidermal Growth Factor Receptor Signaling Pathway”
Total Cost: \$3,400,000.00
- 08/15/14-07/31/17 National Science Foundation (NSF); Role: Co-PI
Development of a Holographic Nanoscale Optics Instrument
Total Cost: \$383,878.00
- 07/01/13-06/30/16 Department of Energy, Role: PI
Optoplasmonic Materials for Next Generation Energy Systems
Total Cost: \$480,000.00
- 05/01/10-04/30/15 National Science Foundation (NSF-CBET); Role: PI
CAREER - “Frequency Plasmon Coupling Spectroscopy for Single Biopolymer Mechanical Sensing”
Total Cost: \$400,000.00
- 08/02/12-08/01/15 National Science Foundation (NSF-CBET); Role: PI
“Multiparametric Optical Microbe Sensing with Engineered Photonic-Plasmonic Nanostructures”
Total Cost: \$300,000.00
- 09/01/10-08/31/15 National Institutes of Health (NCI); Role: Senior Personnel
R25 - Cancer Nanomedicine Training Grant

Completed

- 07/01/13-06/30/14 National Institutes of Health (NIAID), Role: PI
R56 - “Elucidating Non-Virus Encoded HIV Capture through Artificial Virus Nanoparticles”
Total Cost: \$387,750.00
- 06/01/09-03/31/13 National Science Foundation (NSF-CBET); Role: PI
“Rationally Designed Plasmonic Nanostructures for Rapid Bacteria Detection and Identification”
Total Cost: \$357,000.00
- 07/01/09-06/30/11 Army Research Laboratory; Role: PI
“Chemically Enhanced Photonic-Plasmonic Crystals for Explosive Vapor Detection”
Total Cost: \$325,000.00
- 07/01/09-06/30/10 BU Nanomedicine Initiative Phase II, Role: PI
“Real-Time Analysis of Pathogen RNA-Protein Interactions at a Single RNA Molecule Level”
Total Annual Cost: \$50,000.00

- 07/01/10-06/30/11 Army Research Laboratory, Role: Co-PI
 “Plasmon Enhanced Stimulated Coherent Raman: A New Spectroscopic Technique for Highly Specific and Sensitive Standoff Detection”
 Total Annual Cost (for Reinhard): \$40,000.00
- 07/01/08-06/30/10 National Institutes of Health (NIBI); Role: PI
 R21 - “Plasmon Coupling Microscopy for the in vivo Detection and Tracking of Cytoplasmic RNA”
 Total Cost: \$436,733.00
- 01/01/10-06/30/10 BU Nanomedicine Initiative Phase I; Role: PI
 “Real-Time Analysis of Pathogen RNA-Protein Interactions at a Single RNA Molecule Level”
 Total Cost: \$20,000.00
- 07/01/07-06/30/10 Army Research Laboratory; Role: Co-PI
 “COBRA - Development of a Spectroscopic Platform for Rapid Pathogen Detection”
 Total Cost (for Reinhard): \$300,000.00

Professional Activities

Editorial Board:

- 2014 - Member of the Editorial Board of Scientific Reports
 2013 - Member of the Editorial Board of Nanospectroscopy
 2010 - Member of the Editorial Board of the Journal Nanomedicine and Nanotechnology

Peer Review:

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|---|--|-----------------------|
| 1. Nature Nanotechnology | 2. Nano Letters | 3. ACS Nano |
| 4. Advanced Functional Materials | 5. JACS | 6. Nanoscale |
| 7. Analytical Chemistry | 8. Langmuir | 9. Applied Physics B |
| 10. Journal of Raman Spectroscopy | 11. Nucleic Acids Research | |
| 11. Materials Research Bulletin | 13. ACS Applied Materials and Interfaces | |
| 14. Central European Journal of Physics | 15. Nanotoxicology | 16. Chem. Phys. Lett. |
| 17. Journal of Physical Chemistry | 18. Small | 19. Optics Express |
| 20. Advanced Materials | 21. The Analyst | 22. JACS |
| 23. Microscopy and Microanalysis | 24. Angewandte Chemie | 25. Small |
| 26. Molecular Pharmaceutics | 27. Nature Photonics | 28. Nature |
| 29. Journal of Materials Chemistry | 30. Journal of Biophotonics | |
| 31. Particles and Particle Systems Characterization | | |

Grant Review:

- 2015 DOE Early Career Reviewer
 2014 NIH NIBIB X02 Review Panel

- 2013 NIH NIBIB P13 Special Emphasis Panel
- 2013 NIH NIBIB P41 Special Emphasis Panel
- 2013 NSF CBET Career Panel
- 2013 Swiss-Korean Science and Technology Program
- 2013 Member of the National Institutes of Health Panel for P41 (Biomedical Research Resource) Review Panel
- 2013 Reviewer for Netherlands Organisation for Scientific Research (NWO, the Dutch research council)
- 2012 Member of the National Institutes of Health Panel for P41 (Biomedical Research Resource) Review Panel
- 2012 Member of the National Science Foundation EPMD Review Panel
- 2012 Member of the National Science Foundation CBET Biosensing Panel
- 2011 Member of the National Science Foundation CBET Biosensing Panel
- 2012 Member of the National Institutes of Health K99 (Path to Independence) Review Panel
- 2011 Member of the National Institutes of Health K99 (Path to Independence) Review Panel
- 2010 Member of the National Science Foundation Science and Technology Center (STC) Reverse Site Visit Panel
- 2010 Member of the National Institutes of Health Engineered Nanomaterials: Linking Physical and Chemical Properties to Biology (U19) Panel
- 2010 Member of the National Science Foundation CBET Biosensing Panel
- 2009 Member of the National Science Foundation CBET Biosensing Panel
- 2009 National Science Foundation Science and Technology Center (STC) Site Visitor
- 2007 - Ad hoc reviewer for the National Science Foundation, National Institutes of Health, ACS Petroleum Research Fund, Air Force

Professional Memberships

- Member of the German Bunsen Society for Physical Chemistry
- Member of the American Chemical Society
- Member of the Materials Research Society
- Member of the Boston University Cancer Center

Teaching and Mentoring

Undergraduate Level Lecture Courses

- 1) Spring'07' - '09: Physical Chemistry Laboratory (CH354)

This course comprises a 2 hour lecture and 8 hours laboratory component per week. The course is required for chemistry majors at Boston University. Typical enrollment is ~30 students.

- 2) Fall'09: General Chemistry (CH101)

This is a gateway course with ~900 students. I taught one out of three sections with approximately 250 students. The course has 3 hours of lecture per week.

3) Spring '11 - '13: General and Quantitative Analytical Chemistry (CH110)

This is a 3 hours lecture with a an enrollment of 150 students. The course is a two semester sequence for students concentrating in the sciences, especially for those considering a chemistry or biochemistry-molecular biology major.

4) Spring 2014: General and Quantitative Chemistry (CH112)

Honors class in general chemistry. 3 hours lecture with an enrollment of 50 students.

5) Fall 2014: General and Quantitative Analytical Chemistry (CH109)

This is a 3 hours lecture with a an enrollment of 150 students. The course is a two semester sequence for students concentrating in the sciences, especially for those considering a chemistry or biochemistry-molecular biology major.

Graduate Level Lecture Courses

1) Fall '08 & '11: Physical Chemistry of Engineered Nanomaterials (CH901)

The course (3 hours lecture) introduces in the physical concepts underlying the special properties of nanoscaled materials.

2) Fall '10, '12, '13: Statistical Thermodynamics (CH653)

This 3 hours lecture covers the physical foundations of statistical thermodynamics as well as its application to contemporary problems in solid state and polymer chemistry.

Research Advisees at Boston University

Graduate Students

2007-2011 Lynell Skewis (now staff scientist, T2 Biosystems, Waltham)	2011-2013 Yue Qiu (now UW Madison)
2008-2012 Hongyun Wang (now postdoc, Memorial Sloan-Kettering Cancer Center)	2011-2013 Tal Perlov (now IBM)
2008-2012 Bo Yan (now staff scientist, GE Global Research, Shanghai)	2012- Sarah Lerch
2008-2012 Guoxing Rong (now postdoc, Northeastern University)	2013 - Fangda Xu
2009 - Xinwei Yu	2013 - Xin Zhao
2009 - Emily Chen	2013 - Mohammadhossein Alizadeh
2010 - Linxi Wu	2013 - Ali Khanezhari
2010 - Yan Hong	
2011 - Amin Feizpour	

Postgraduate Scholars

2007-2010 Dr. Linglu Yang (now staff scientist, GE Global Research, Shanghai)

2010- Dr. Wonmi Ahn

2010-2012 Dr. Svetlana Boriskina (now research associate at MIT)

2013-2014 Dr. Jorg Burgmeier (now junior group leader, Fraunhofer Heinrich Hertz Institute)

2010-2012 Dr. Jing Wang (now staff scientist, Medica Corporation, Bedford MA)

2013-2014 Dr. Rozalia Orghici (now postdoc, TU Clausthal)

Undergraduate Students

2007 Clark Whitney

2011 Guilia Anselmi

2007-2008 Nam Nguyen

2011-2012 Mark Roberto

2007-2008 Matt Farris

2012-13 Bradford Cushman

2008-2009 Tarik Silk

2013 - Camille Silva

2009 Yasmin Khashab

2013 - Michael Goloshapov

2009 Ankita Shastri

2013 - Hrishikesh Somayaji

2009-2010 Brandon Sherzer

2013 Amy Ly

2010 Jonathan Flores

2014- Joann Li

2010-2011 Hee Jin Cho

2014- Crystal Wong

2010-2011 Franklin Cappadora

2014- Timothy Chiang

2010-2012 Sarah Danglo

2014- Jake Yu

Peer-Reviewed PublicationsAs Principal Investigator at Boston University

1. M. H. Alizadeh, B.M. Reinhard, “Split Ring Resonators for Enhanced Uniform-Sign Chiral Near Fields”, ACS Photonics, submitted.
2. J. Burgmeier, A. Feizpour, W. Schade, B.M. Reinhard, “Plasmonic nanoshell functionalized etched fiber Bragg gratings for highly sensitive refractive index measurements”, Optics Letters, submitted.

3. A. Feizpour, X. Yu, H. Akiyama, C.M. Miller, E. Edmans, S. Gummuluru, B.M. Reinhard, “Quantifying Lipid Contents in Enveloped Virus Particles with Plasmonic Nanoparticles”, *Small*, DOI: 10.1002/sml.201402184 (in press).
4. Y. Hong, B.M. Reinhard, “Collective Photonic-Plasmonic Resonances in Noble Metal-Dielectric Nanoparticle Hybrid Arrays”, *Optics Materials Express* **4**, 2409 (2014).
5. X. Yu, A. Feizpour, N.P. Ramirez, L. Wu, H. Akiyama, F. Xu, S. Gummuluru, B.M. Reinhard, “Glycosphingolipid-functionalized nanoparticles recapitulate CD169-dependent HIV-1 uptake and trafficking in dendritic cells”, *Nature Communications* **5**, 4136 (2014)
6. L. Wu, B.M. Reinhard, “Probing subdiffraction limit separations with plasmon coupling microscopy: concepts and applications”, *Chem. Soc. Rev.* **43**, 3884 (2014) (invited tutorial review).
7. L. Wu, X. Yu, A. Feizpour, B.M. Reinhard, “Nanoconjugation: A Materials Approach to Enhance Epidermal Growth factor Induced Apoptosis”, *Biomater. Sci.* **2**, 156 (2014). (cover article)
8. Y. Hong, Y. Qiu, T. Chen, B.M. Reinhard, “Rational Assembly of Optoplasmonic Heteronanoparticle Arrays with Tunable Photonic-Plasmonic Resonances”, *Adv. Funct. Mater.* **24**, 739 (2014). (cover article)
9. F. Chen, A. Clough, B.M. Reinhard, M. Grinstaff, N. Jiang, T. Koga, O.K.C. Tsui, “Glass Transition Temperature of Polymer-Nanoparticle Composites: Effect of Polymer-Particle Interfacial Energy”, *Macromolecules* **46**, 4663 (2013)
10. T. Chen, M. Pourmand, A. Feizpour, B. Cushman, B.M. Reinhard, “Tailoring Plasmon Coupling in Self-Assembled One-Dimensional Au Nanoparticle Chains through Simultaneous Control Size and Gap Separation”, *J. Phys. Chem. Lett.* **4**, 2147 (2013).
11. W. Ahn, Y. Hong, S. V. Boriskina, B.M. Reinhard, “Demonstration of Efficient On-Chip Energy Transfer in Self-Assembled Optoplasmonic Networks”, *ACS Nano* **7**, 4470 (2013).
12. W. B. Puryear, H. Akiyama, S.D. Geer, N.P. Ramirez, X. Yu, B.M. Reinhard, S. Gummuluru, “Interferon-Inducible Mechanism of Dendritic Cell Mediated HIV-Dissemination is Dependent on Siglec1/CD169”, *PLoS Pathogens* **9**, 1003291 (2013).
13. W. Ahn, Y. Qiu, B.M. Reinhard, “Generation of scalable quasi-3D metallo-dielectric SERS substrates through orthogonal reactive ion etching”, *J. Mater. Chem C* **1**, 3310 (2013).
14. X. Yu, J. Wang, A. Feizpour, B.M. Reinhard, “Illuminating the Lateral Organization of Cell Surface CD24 and CD44 through Plasmon Coupling between Au Nanoparticle Immunolabels”, *Anal. Chem.* **85**, 1290 (2013).

15. Y. Hong, M. Pourmand, S.V. Boriskina, B.M. Reinhard, “Enhanced Light Focusing in Self-Assembled Optoplasmonic Clusters with Subwavelength Dimensions” *Adv. Mater.* **25**, 115 (2013).
16. T. Chen, B.M. Reinhard, “Characterizing the Lateral Friction of Nanoparticles on On-Chip Integrated Black Lipid Membranes”, *Small* **9**, 738 (2012).
17. Y. Hong, M. Pourmand, S. V. Boriskina, B.M. Reinhard, “Enhanced Light Focusing in Self-Assembled Optoplasmonic Clusters with Subwavelength Dimensions”, *Adv. Mater.* **25**, 115 (2013).
18. H. Wang, L. Wu, B. M. Reinhard, “Scavenger Receptor Mediated Endocytosis of Silver Nanoparticles into J774A.1 Macrophages is Heterogeneous”, *ACS Nano* **6**, 7122 (2012).
19. J. Wang, X. Yu, S.V. Boriskina, B.M. Reinhard, “Quantification of Differential ErbB1 and ErbB2 Cell Surface Expression and Spatial Nanoclustering through Plasmon Coupling”, *Nano Lett.* **12**, 3231 (2012).
20. B. Yan, Y. Hong, B.M. Reinhard, “Monitoring Enzymatic Degradation of Pericellular Matrices through SERS Stamping”, *Nanoscale* **4**, 3917 (2012).
21. C. Forestiere, A. J. Pasquale, A. Capretti, G. Miano, A. Tamburrino, S. Y. Lee, B. M. Reinhard, L. Dal Negro, “Genetically Engineered Plasmonic Nanoarrays”, *Nano Lett.* **12**, 2037 (2012).
22. A.J. Pasquale, B.M. Reinhard, L. Dal Negro, “Concentric Necklace Nanolenses for Optical Near-Field Focusing and Enhancement”, *ACS Nano* **6**, 4341 (2012).
23. W.B. Puryear, X. Yu, N.P. Ramirez, B.M. Reinhard, S. Gummuluru, “HIV-1 Incorporation of Host Cell Derived Glycosphingolipid GM3 allows for Capture by Mature Dendritic Cells”, *Proc. Natl. Acad. Sci. U.S.A* **109**, 7475 (2012).
24. G. Rong, B. M. Reinhard, “Monitoring the Size and Lateral Dynamics of ErbB1 Enriched Membrane Domains through Live Cell Plasmon Coupling Microscopy” *PLoS ONE* **7**, e34175 (2012).
25. W. Ahn, S. V. Boriskina, Y. Hong, B. M. Reinhard, “Photonic-Plasmonic Mode Coupling in On-Chip Integrated Optoplasmonic Molecules” *ACS Nano* **6**, 951 (2012).
26. W. Ahn, S. V. Boriskina, Y. Hong, B. M. Reinhard, “Electromagnetic Field Enhancement and Spectrum Shaping through Plasmonically Integrated Optical Vortices”, *Nano Lett.* **12**, 219 (2012).
27. S.V. Boriskina, B. M. Reinhard, “Molding the flow of light on the nanoscale from vortex nanogears to phase-operated plasmonic machinery” *Nanoscale* **4**, 76 (2012). (invited feature article)

28. B. Yan, S. V. Boriskina, B. M. Reinhard, “Design and Implementation of Noble Metal Nanoparticle Cluster Arrays for Plasmon Enhanced Biosensing” *J. Phys. Chem. C* **115**, 24437 (2011). (invited feature article; cover article)
29. J. Wang, S.V. Boriskina, H. Wang, B.M. Reinhard, “Illuminating Epidermal Growth Factor Receptor Densities on Filopodia through Plasmon Coupling”, *ACS Nano* **5**, 6619 (2011).
30. S. V. Boriskina, B. M. Reinhard, “Adaptive on-chip control of nano-optical fields with optoplasmonic vortex nanogates” *Optics Express*, **19**, 22305 (2011).
31. A. Pasquale, B. M. Reinhard, L. Dal Negro, “Engineering Photonic-Plasmonic Coupling in Metal Nanoparticle Necklaces” *ACS Nano* **5**, 6619 (2011). (cover article)
32. S. Boriskina, B. M. Reinhard, “Spectrally and Spatially Configurable Superlenses for Optoplasmonic Nanocircuits”, *Proc. Natl. Acad. Sci. U.S.A* **108**, 3147 (2011).
33. H. Wang, G. Rong, B. Yan, L. Yang, B. M. Reinhard, “Optical Sizing of Immunolabel Clusters through Multispectral Plasmon Coupling Microscopy”, *Nano Lett.* **11**, 498 (2011).
34. J. Wang, L. Yang, S. Boriskina, B. Yan, B. M. Reinhard, ”Spectroscopic Ultra-Trace Detection of Nitroaromatic Gas Vapor on Rationally Designed Two-Dimensional Nanoparticle Cluster Arrays”, *Anal. Chem.* **83**, 2243 (2011).
35. Y. Bo, S. Boriskina, B. M. Reinhard, “Optimizing Gold Nanoparticle Cluster Configurations ($n \leq 7$) for Array Applications”, *J. Phys. Chem. C*. **115**, 4578 (2011).
36. Y. Chen, X. Wang, M. K. Hong, C. L. Rosenberg, B. M. Reinhard, S. Erramilli, P. Mohanty, *Appl. Phys. Lett.* **97**, 233702 (2010).
37. L. Yang, B. Yan. W. R. Premasiri, L. D. Ziegler, L. Dal Negro, B. M. Reinhard, “Engineering Nanoparticle Cluster Arrays for Bacterial Biosensing: The Role of the Building Block in Multiscale SERS Substrates”, *Adv. Funct. Mater* **20**, 2619 (2010).
38. A. Thubagere, B. M. Reinhard, “Nanoparticle Induced Apoptosis Propagates through Hydrogen-Peroxide Mediated Bystander Killing: Insights from a Human Intestinal Epithelium in vitro Model”, *ACS Nano* **4**, 3611 (2010).
39. B. Yan, B. M. Reinhard, “Identification of Tumor Cells through Spectroscopic Profiling of the Cellular Surface Chemistry”, *J. Phys. Chem. Lett*, **1**, 1595 (2010).
40. L. Yang, H. Wang, B. Yan, B. M. Reinhard, “Calibration of Silver Plasmon Rulers in the 1-25nm Separation Range: Experimental Indications of Distinct Plasmon Coupling Regimes”, *J. Phys. Chem. C.*, **114**, 4901 (2010).
41. G. Rong, H. Wang, B. M. Reinhard, “Insights from a Nanoparticle Minuet: Two-Dimensional Membrane Profiling through Silver Plasmon Ruler Tracking”, *Nano Lett.*, **10**, 230 (2010).

42. B. M. Reinhard, J. M. Yassif, P. Vach, J. Liphardt, "Plasmon Rulers as Dynamic Molecular Rulers in Enzymology", *Methods in Enzymology* **475**, 175 (2010).
43. J. R. Mellins, R. McClure, D. Lopez, O. Green, B. M. Reinhard, C. Genco, "Role of Hfq in Iron Dependent and Independent Gene Regulation in *Neisseria meningitidis*", *Microbiology* **156**, 2316 (2010).
44. L. R. Skewis, B. M. Reinhard, "Control of Colloid Surface Chemistry through Matrix Confinement: Facile Preparation of Stable Antibody Functionalized Silver Nanoparticles", *ACS. Appl. Mater. Interfaces*, **2**, 35 (2010).
45. B. Yan, A. Thubagere, W. R. Premasiri, L. D. Ziegler, L. Dal Negro, B. M. Reinhard, "Engineered SERS Substrates with Multiscale Signal Enhancement: Nanoparticle Cluster Arrays", *ACS Nano*, **3**, 1190 (2009).
46. H. Wang, B. M. Reinhard, "Monitoring Simultaneous Distance and Orientation Changes in Discrete Pairs of DNA linked Gold Nanoparticles", *J. Phys. Chem. C* **113**, 11215 (2009).
47. A. Gopinath, S. V. Boriskina, W. R. Premasiri, L. Ziegler, B. M. Reinhard, L. Dal Negro, "Plasmonic Nanogalaxies: Multiscale Arrays for Surface-Enhanced Raman Sensing", *Nano Lett.* **9**, 3922 (2009).
48. A. Gopinath, S. V. Boriskina, B. M. Reinhard, L. Dal Negro, *Opt. Express* **17**, 3741 (2009).
49. M. Nasr, D. Goode, N. Nguyen, G. Rong, L. Yang, B. M. Reinhard, B. Saleh, M. Teich, *Opt. Comm.* **282**, 1154 (2009).
50. A. Gopinath, S. V. Boriskina, N.-N. Feng, B. M. Reinhard, L. Dal Negro, "Photonic-Plasmonic Scattering Resonances in Deterministic Aperiodic Structures", *Nano Lett.*, **8**, 2423 (2008).
51. G. Rong, H. Wang, L. R. Skewis, B. M. Reinhard, "Resolving Sub-Diffraction Limit Encounters in Nanoparticle Tracking Using Live Cell Plasmon Coupling Microscopy", *Nano Lett.*, **8**, 3386 (2008).
52. L. Yang, B. Yan, B. M. Reinhard, "Correlated Optical Spectroscopy and Transmission Electron Microscopy of Individual Hollow Nanoparticles and their Dimers", *J. Phys. Chem. C*, **112**, 15989 (2008).
53. L. R. Skewis, B. M. Reinhard, "Spermidine Modulated Ribonuclease Activity Probed by RNA Plasmon Rulers", *Nano Lett.*, **8**, 214 (2008).

As Postgraduate Researcher at the University of California at Berkeley

54. A. Cabot, R. K. Smith, Y. Yin, H. Zheng, B. M. Reinhard, H. Liu, A. P. Alivisatos, *ACS Nano* **2**, 1452 (2008).
55. B. M. Reinhard, S. Sheikholeslami, A. Mastroianni, A. P. Alivisatos, J. Liphardt, "Use of Plasmon Coupling to reveal the Dynamics of DNA bending and cleavage by single EcoRV restriction enzymes", *Proc. Acad. Natl. U.S.A.* **104**, 2667 (2007).
56. B. M. Reinhard, M. Siu, H. Agarwal, A. P. Alivisatos, J. T. Liphardt, "Dynamic Molecular Rulers Based on Plasmon Coupling: Performance and Resolution of 40 nm and 80 nm Gold Particle Plasmon Rulers", *Nano Lett.* **5**, 2246 (2005).
57. H. Shroff, B. M. Reinhard, M. Siu, H. Agarwal, A. Spakowitz, J. Liphardt, "A biocompatible force sensor with optical readout and dimensions of 6 nm³", *Nano Lett.* **5**, 1509 (2005).
58. C. Sonnichsen, B. M. Reinhard, J. Liphardt, A. P. Alivisatos, "A Molecular Ruler Based on Plasmon Coupling of Single Gold and Silver Nanoparticles", *Nature Biotechnology*, **23**, 741 (2005).

As Graduate Student at the Technical University Kaiserslautern (Germany)

59. B. M. Reinhard, A. Lagutschenkov, J. Lemaire, P. Boissel, P. Maitre and G. Niedner-Schatteburg, "Coordination versus Internal Reaction in Niobium-Acetonitrile Complexes Probed by Infrared Multiphoton Dissociation Spectroscopy", *J. Phys. Chem. A* **108**, 3350 (2004).
60. B. M. Reinhard, A. Lagutschenkov, G. Niedner-Schatteburg, "Ab initio study of [Mg,nH₂O]⁻ reactive decay products: structure and stability of magnesium oxide and magnesium hydroxide water cluster anions [MgO,(n-1)H₂O]⁻, [HMgOH,(n-1)H₂O]⁻ and [Mg(OH)₂, (n-2)H₂O]⁻", *Phys. Chem. Chem. Phys.* **6**, 4268 (2004).
61. B. M. Reinhard and G. Niedner-Schatteburg, "Ab initio treatment of magnesium water cluster anions [Mg,nH₂O]⁻, n<11", *Phys. Chem. Chem. Phys.* **5**, 1970 (2003).
62. B. M. Reinhard and G. Niedner-Schatteburg, "Ionization energies and spatial volumes of the singly occupied molecular orbital in hydrated magnesium clusters [Mg,nH₂O]⁺", *J. Chem. Phys.* **118**, 3571 (2003).
63. B. M. Reinhard and G. Niedner-Schatteburg, "H₂ Elimination from Hydrated Aluminum Clusters: Acid-Base Reactions Mediated by Intracuster Proton Transfer", *J. Phys. Chem. A* **106**, 7988 (2002).
64. B. M. Reinhard and G. Niedner-Schatteburg, "Co-existence of hydrated electron and metal di-cation in [Mg,nH₂O]⁺", *Phys. Chem. Chem. Phys.* **4**, 1471 (2002).

As Undergraduate Student at the Technical University Munich (Germany)

65. M. K. Beyer, B. S. Fox, B. M. Reinhard, and V. E. Bondybey, "Wet electrons and how to dry them", *J. Chem. Phys.* **115**, 9288 (2001).
66. W. Scherer, M. Spiegler, B. Pedersen, M. Tafipolsky, W. Hieringer, B. Reinhard, A. Down, G. S. McGrady, "Molecular recognition in the solid state: topology of experimental and theoretical charge densities for tetrasulfur tetranitride", *Chem. Commun.* **7**, 635 (2000).

Book Chapters

67. Y. Hong, W. Ahn, S.V. Boriskina, X. Zhao, and B. M. Reinhard, "Template guided self-assembly of discrete optoplasmonic molecules and extended optoplasmonic arrays" in Science and engineering of strongly coupled systems between integrated nano electronic/ photonic/mechanical structures and nanoparticles, edited by Y. Yi and L.C. Kimerling, Pan Stanford Press, in press.
68. H. Wang, G. Rong, J. Wang, B. Yan, L. R. Skewis, B. M. Reinhard, "Noble Metal Nanoparticles as Probes for Cancer Biomarker Detection and Dynamic Distance Measurements in Plasmon Coupling Microscopy" in *Biosensor and Biodetection Technologies for Cancer Detection, Diagnostic, and Research*, edited by K. Herold and A. Rasooly, CRC press, ISBN978-1-4398-4165-5.

Refereed Conference Proceedings

69. X. Yu, L. Wu, A. Khanehzar, A. Feizpour, F. Xu, B. M. Reinhard, "Probing the nano-bio interface with nanoplasmonic optical probes", Proc. SPIE 9166, Biosensing and Nanomedicine VII, 91660Z (27 August 2014); doi: 10.1117/12.2060612.
70. Y. Hong, W. Ahn, B. M. Reinhard, "Photonic-plasmonic mode engineering in metallo-dielectric nanoparticle arrays", Transparent Optical Networks (ICTON), 2014 16th International Conference on, doi: 10.1109/ICTON.2014.6876366.
71. Y. Hong, S. Boriskina, W. Ahn, B. M. Reinhard, "Self-assembled optoplasmonic molecules for enhanced light focusing and manipulation on nanometer length scales" Transparent Optical Networks (ICTON), 2013 15th International Conference on, doi: 10.1109/ICTON.2013.6602726.
72. W. Ahn, S.V. Boriskina, Y. Hong, B. M. Reinhard, "On-chip integrated optoplasmonic molecules and superlenses", Transparent Optical Networks (ICTON), 2012 14th International Conference on, doi: 10.1109/ICTON.2012.6254438

73. H. Wang, G. Rong, L. Yang, B. M. Reinhard, "Silver Plasmon Rulers as Probes in Polarization-Resolved Plasmon Coupling Microscopy" *Proceedings of SPIE* 7911, 791110 (2011); doi:10.1117/12.874244
74. S.V. Boriskina, W. Ahn, Y. Hong, B. M. Reinhard, "Hybrid optoplasmonic elements for ultra sensitive detection and information processing on the nanoscale", paper 8236-51 of SPIE Conference 8236 (Photonics West 2011).
75. W. Ahn, S.V. Boriskina, Y. Hong, B. M. Reinhard, "Fabrication of hybrid optoplasmonic micro resonators for high-efficiency photonic-plasmonic mode coupling", W. Ahn, S.V. Boriskina, Y. Hong, B.M. Reinhard, paper 8236-53 of SPIE conference 8238 (Photonics West 2011).
76. S.V. Boriskina, W. Ahn, Y. Hong, B. M. Reinhard, "Plasmonically integrated optical tornadoes for efficient light harvesting", paper 8256-71 of Conference 8256 (Photonics West 2011).
77. B. Yan, S. Boriskina, B. M. Reinhard, "Optimizing Nanoparticle Cluster Arrays for Biosensing", *Transparent Optical Networks (ICTON)*, 2011, 13th International conference, pages: 1-4. DOI: 10.1109/ICTON.2011.5970899.
78. S.V. Boriskina, W. Ahn, Y. Hong, B. M. Reinhard "Hybrid optoplasmonic microresonators and networks" S.V. Boriskina, W. Ahn, Y. Hong, B. M. Reinhard, *Photonics Conference (PHO) 2011 IEEE*, DOI: 10.1109/PHO.2011.6110488.
79. B. M. Reinhard, "Engineered SERS Substrates with Multiscale Signal Enhancement: Nanoparticle Cluster Arrays", *XXII International Conference on Raman Spectroscopy*, Volume: 1267, Pages: 952-953, Published: 2010.
80. S.V. Boriskina, S.Y. Lee, B. Yan, B. M. Reinhard, L. Dal Negro, "Aperiodic Platforms for Multi-Parametric Sensing and Spectroscopy", *XXII International Conference on Raman Spectroscopy*, Volume: 1267, Pages: 958-959 Published: 2010.
81. B. M. Reinhard, G. Rong, L. R. Skewis, H. Wang, B. Yan, L. Yang, "Plasmonic Nanostructures in Biosensing: Applications from Plasmon Coupling Microscopy to Rapid Pathogen Detection using Nanoparticle Cluster Arrays", *MRS Proceedings*, Fall 2009, Symposium XX.
82. Y. Wang, B. M. Reinhard, C. Sun, X. Zhang, "Particle Enhanced Plasmonic NSOM", *Proceedings of SPIE* 6642, article 6642-7, 2007.

Patents

83. Engineered SERS Substrates Employing Nanoparticle Cluster Arrays With Multiscale Signal Enhancement. International Patent Application No.:PCT/US10/020640.

84. GM3 Functionalized Artificial Virus Nanoparticles. US Application Number 61/980,175.
85. Vorrichtung und Verfahren zur Bestimmung einer Brechzahl, German Patent Application Number 102014220040.7.

Invited Talks and Conference Contributions (invited talks are marked by *)

1. *Template guided self-assembly strategies for discrete and extended optoplasmonic materials*; SPIE Photonics West, San Francisco, February 7-12, 2015.*
2. *Optoplasmonic Materials with Metallic and Dielectric Building Blocks in Rational Geometries*; MRS Fall Meeting, Boston, November 30 - December 5, 2014.
3. *Membrane Wrapped Noble Metal Nanoparticles for Improved Imaging and Targeting*; MRS Fall Meeting, Boston, November 30 - December 5, 2014.
4. *New Hybrid Materials with Plasmonic Components: From Optoplasmonics to Membrane Wrapped Artificial Virus Nanoparticles*; Nano-Cordoba 2014, Cordoba, Argentina, October 22-24, 2014.*
5. *Probing the nano-bio interface with nanoplasmonic optical probes*; SPIE Optics and Photonics, San Diego, August 17-21, 2014.*
6. *Photonic-Plasmonic Mode Engineering in Metallo-Dielectric Nanoparticle Arrays*; International Conference of Optical Transparent Networks (ICTON 16), Graz, Austria, July 6–10, 2014.*
7. *Reverse Engineering of Glycoprotein Independent HIV-1 Uptake and Sequestration in Dendritic Cells with Plasmonic Nanoparticles*; Gordon Research Conference on Noble Metal Nanoparticles, Mount Holyoke College, June 15-20, 2014.*
8. *Towards Molecular Control of Interparticle Separations in (Opto)Plasmonic Nanoparticle Clusters and Arrays via Template Guided Self Assembly*; 247nd ACS National Meeting, Dallas, March 16-20, 2014.
9. *Nanoconjugation Enhances Epidermal Growth Factor Induced Apoptosis*; 247nd ACS National Meeting, Dallas, March 16-20, 2014.
10. *Probing Scavenger Receptor Mediated Endocytosis in a Macrophage Model System through Plasmon Coupling Microscopy*; 247nd ACS National Meeting, Dallas, Tx, March 16-20, 2014.
11. *Collective Plasmon Resonance Engineering in Discrete Metallo-Dielectric Molecules and Optoplasmonic Arrays*; Physics of Quantum Electronics, Snowbird, January 5-9, 2014.*

12. *Discrete Optoplasmonic Molecules as Building Blocks for Optoelectronics*; MRS Fall Meeting, Boston, December 1-6, 2013.
13. *Superenhancement of Light in Self-Assembled Multi-Scale Nanoparticle Cluster Arrays and Discrete Optoplasmonic Molecules*; Progress in Electromagnetics Research Symposium (PIERS 34), Stockholm, Sweden, August 12-15, 2013.*
14. *Field Enhancement and Spectrum Shaping in Self-Assembled Optoplasmonic Molecules: From Fano Resonances to Optical Vortices*; Progress in Electromagnetics Research Symposium (PIERS 34), Stockholm, Sweden, August 12-15, 2013.*
15. *Bioplasmonics*, Summer School on Plasmonics 3, Cargese, France, July 28 - August 3, 2013.*
16. *Self-Assembled Optoplasmonic Molecules for Enhanced Light Focusing and Manipulation on Nanometer Length Scales*; International Conference of Optical Transparent Networks (ICTON 15), Cartagena, Spain, June 23-27, 2013.*
17. *(Opto)plasmonic Devices and Materials for Superenhancement and Beyond*; Materials Science and Engineering Department, University of Washington, Seattle, April 1 2013.*
18. *Monitoring Cellular Trafficking of Nanoparticle Cargo in Murine Macrophages through Plasmon Coupling Microscopy*; 2nd Global Congress on Nanoengineering for Medicine and Biology, Boston, February 4-6, 2013.*
19. *Mapping Distance-Dependent Plasmon Coupling in Self-Assembled 1-Dimensional Nanoparticle Clusters*, Physics of Quantum Electronics, Snowbird, January 6-10, 2013.*
20. *Going Beyond Plasmonics: Self-assembled Optoplasmonic Molecules and Superlenses*, Nanotek and Expo, Philadelphia, December 3-5, 2012.*
21. *Plasmon Coupling Based Approaches for Monitoring the Spatial Organization of Cellular Receptors*; MRS Fall Meeting, Boston, November 25-30, 2012.
22. *Reaching Beyond Plasmonics with Self-Assembled Optoplasmonic Molecules*; MRS Fall Meeting, Boston, November 25-30, 2012.
23. *Reaching Beyond Plasmonics: Hybrid Optoplasmonic Structures through Template-Assisted Self-Assembly*; University of Massachusetts, Boston, November 7, 2012.*
24. *Rationally Designed Nanoparticles as Tools in Biomedical Research and Imaging*, Department of Mechanical Engineering; Boston Medical Center, October 15, 2012.*
25. *Rationally Designed Nanoparticles as Tools in Biomedical Research and Imaging*, Department of Mechanical Engineering; Washington University in St. Louis, October 5, 2012.*

26. *Mapping Cellular Processes Through Plasmon Coupling Microscopy*; Department of Chemistry, Columbia University, September 09, 2012.*
27. *Selbstorganisierte Plasmonische Systeme fuer Bio-Sensorik und Energiesysteme der Naechsten Generation*; Department of Chemistry, Martin-Luther University Halle-Wittenberg (Germany), August 28, 2012.*
28. *On-chip Integrated Optoplasmonic Molecules and Superlenses*; International Conference on Transparent Optical Networks, Icton 2012, Warwick, England (July 2-5, 2012).*
29. *Coupled Optical Vortices in Plasmonic Nanostructures*; 3rd International Conference on Metamaterials, Photonic Crystals and Plasmonics, Meta 2012, Paris, France (April 19-22, 2012).*
30. *Optoplasmonic Molecules and Superlenses (and other Phase Operated Plasmonic Nanostructures)*; The 2nd International Conference on Frontiers of Plasmonics, Chengdu, China (April 8-12, 2012).*
31. *Mapping the Spatial Distribution of Cell Surface Receptors with Plasmon Coupling Microscopy*; Plasmonics in Sensing and Imaging Session, Optical Society of America, Frontiers in Optics, San Jose, CA (Oct16-20 2011).*
32. *Optimized Nanoparticle Cluster Arrays for Biosensing*; Symposium on sensors based on Fluorescence, SERS, SPR, and Photoelectrochemistry, 220 ECS Meeting, Boston, MA (October 9-14, 2011).*
33. *Plasmon Coupling in Biosensing and Imaging*; Departmental Colloquium (Chemistry), Technical University Kaiserslautern, Germany (September 17, 2011).*
34. *Rationally Designed Nanoparticle Cluster Arrays for Surface Enhanced Raman Spectroscopy*; 242nd ACS National Meeting, Denver, CO, August 28 – September 1, 2011.
35. *Optical Sizing of Immunolabel Clusters through Multispectral Plasmon Coupling Microscopy*; 242nd ACS National Meeting, Denver, CO, August 28 – September 1, 2011.
36. *Optimized Nanoparticle Cluster Arrays for Biosensing*; Photonic Atoms and Molecules Session, International Conference on Transparent Optical Networks (Icton'11), Stockholm, Sweden (June 26-30, 2011).*
37. *Probing the Nano-Bio Interface through Plasmon Coupling Microscopy*; Plasmonic Workshop (Satellite Meeting, XVII Conference on Physical Chemistry and Inorganic Chemistry), Cordoba, Argentina (May 7, 2011).*
38. *Plasmon Coupling Enabled Sensing and Imaging of the Nano-Bio Interface*; Departmental Colloquium (Chemistry), University of Rhode Island, Kingston, (March 7, 2011).*

39. *Silver Plasmon Rulers as probes in polarization-resolved plasmon coupling microscopy*; SPIE BiOS, San Francisco, CA, January 22-27, 2011.*
40. *Plasmon Coupling Microscopy for Subdiffraction Limit Imaging and Sensing*; Departmental Colloquium (Chemical Engineering), University of Washington, Seattle, WA (October 5, 2010).*
41. *Optimizing Nanoparticle Cluster Arrays for Biosensing*; 14th Annual Future of Light Symposium, Novel Electromagnetic Materials, Boston University, Boston, MA (December 2, 2010).*
42. *Plasmon Coupling Enabled Sensing and Imaging of the Nano-Bio Interface*; Departmental Colloquium (Chemistry), Boston University, Boston, MA (November 29, 2010).*
43. *Resolving sub-diffraction limit distances using Plasmon Coupling Microscopy*; Annual Meeting AIChE, Salt Lake City, UT, November 12, 2010.
44. *Plasmonic Sensing and Imaging at the Nano-BioInterface*; Abraxis Biosciences, Costa Mesa, CA (September 28, 2010).*
45. *2D cell membrane profiling through ratiometric silver plasmon ruler tracking*; 242nd ACS National Meeting, Boston, MA, August 22, 2010.
46. *Resolving Subdiffraction Limit Distances Using Plasmon Coupling Microscopy*; “Plasmonics” Gordon Research Conference, Colby College, ME (June 15, 2010).*
47. *Stable functionalized Silver Nanoparticles for Cell Surface Cancer Biomarker Labeling and Tracking*; Detection of Protein Biomarkers for Biomedical Applications Session, New England Regional Meeting of the American Chemical Society, SUNY Potsdam, NY (Jun3 2010).*
48. *Engineered SERS Substrates with Multiscale Signal Enhancement: Nanoparticle Cluster Arrays*; International Conference of Raman Spectroscopy, Boston, MA (August 13, 2010).*
49. *Chemically Enhanced Photonic Plasmonic Crystals for Explosive Vapor Sensing*; Army Research Laboratory, Adelphi, MD (May 13, 2010).*
50. *Nanoparticle Cluster Arrays: photonic-plasmonic crystals with multiscale field enhancement*; 241st ACS National Meeting, San Francisco, CA, March 22, 2010.
51. *Plasmonic Nanostructures in Biosensing: Applications from Plasmon Coupling Microscopy to Rapid Pathogen Detection Using Nanoparticle Cluster Arrays*; Departmental Colloquium (Chemistry), University of Connecticut, Storrs, CT (February 17, 2010).*
52. *Plasmonic Nanostructures in Biosensing: Applications from Plasmon Coupling Microscopy to Rapid Pathogen Detection using Nanoparticle Cluster Arrays*; MRS Fall Meeting, Boston, MA, November 30 – December 4, 2009.

53. *Active Plasmonic Nanostructures for Sensing and Imaging*; Nanotechnology Symposium, New England Regional Meeting of the American Chemical Society, Hartford, CT (October 7, 2009).*
54. *Active Plasmonic Nanostructures for Sensing and Imaging*; Center for Nanoscience (CeNS), Munich, Germany (July 24, 2009).*
55. *Engineering SERS substrates for bacterial pathogen detection: Nanoparticle Cluster Arrays with multiscale signal enhancement*; 239th ACS National Meeting, Washington, DC, March 21-25, 2009.
56. *Monitoring sub-diffraction resolution limit distances using Plasmon Coupling Microscopy (PCM)*; 239th ACS National Meeting, Washington, DC, March 21-25, 2009.
57. *Resolving sub-diffraction limit encounters in nanoparticle tracking using live cell plasmon coupling microscopy*; Single Molecule Biophysics Conference, Aspen, CO, January 4 – January 10, 2009.
58. *Active Plasmonic Nanostructures and Their Applications in Sensing and Imaging*; New England Society for Microscopy Fall Meeting, Gordon College, Wenham, MA (December 4, 2008).*
59. *Active Plasmonic Nanostructures and Their Applications in Sensing and Imaging*; 11th Annual Future of Light Symposium, Biophotonics, Boston University, Boston, MA (June 17, 2008).*
60. *Plasmon Rulers as Tool in Single Molecule Biophysics*; Single Molecule Biophysics Discussion Series, Harvard Medical School, Boston, MA (May 28, 2008).*
61. *Dynamic Distance Measurements Using Plasmon Rulers*; Nanotechnology in Medicine: From Diagnostics to Therapeutics, Boston University, Boston, MA (April 4, 2008).*
62. *Plasmon Rulers as Tool in Single Molecule Biophysics*; Biophysics Seminar, Brandeis University, Waltham, MA (January 11, 2008).*
63. *Plasmon Coupling for Dynamic Distance Measurements in vitro and in vivo*; Nanomedicine Symposium, Experimental Biology Annual Meeting, Washington, DC (April 28 - May 2, 2007).*
64. *Nanoplasmonics for Extreme Sensing Applications*; Schlumberger Cambridge Research Center, Cambridge, MA (February 8, 2007).*
65. *Active Nanostructures in Plasmonics and Photonics*; Molecular Foundry, Lawrence Berkeley National Laboratory, Berkeley, CA (November 15, 2006).*
66. *Plasmon Rulers and Their Application in Single Molecule Biophysics*; National Institutes of Health (NHLBI), Bethesda, MD (February 21, 2006).*

67. *Plasmon Rulers and other Active Nanostructures for Dynamic Distance Measurements*; Department of Chemistry, University of California at Los Angeles (January 19, 2006).*
68. *Plasmon Rulers and Their Application in Single Molecule Biophysics*; Nanobiocenter, Odense University, Denmark (November 18, 2005).*
69. *Theory and Concepts of Plasmon Rulers*; Braeuchle Research Group, Department of Chemistry, Ludwig Maximilians University, Munich, Germany (January 31, 2005).
70. *Reductive Nitrile Coupling in Niobium–Acetonitrile Complexes Probed by Free Electron Laser IR Multiphoton Dissociation Spectroscopy*; Annual Western Spectroscopy Association Conference, Pacific Grove, CA (January 28-30, 2004).
71. *Chemistry of Microsolvated Metal Ions* ; Low-energy electron collision processes meeting of the German Research Society (DFG), Kaiserlautern, Germany, April 24-25, 2003.*