

## Byung I. Kim, Ph. D

Associate Professor of Physics, Boise State University, Boise, ID 83725  
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### (i) Professional Preparation

|  |                  |             |
|--|------------------|-------------|
| Korea Advanced Institute of Science and Technology | Physics          | BS, 1991    |
| Seoul National University                          | Physics          | MS, 1993    |
| Seoul National University                          | Physics          | Ph. D, 1998 |
| University of Houston                              | Chemical Physics | 1998-2001   |
| Sandia National Laboratories                       | Biophysics       | 2001-2004   |

### (ii) Appointments

2009 Aug.– Present : Associate Professor  
2004 July– 2009 July : Assistant Professor, Boise State University  
2001 Nov.– 2004. July: Postdoctoral Appointee, Sandia National Laboratories  
1998 Nov.– 2001 Oct: Research Associate I, University of Houston

### (iii) Research Areas of Interest

Confinement induced water phase transitions, Chiral recognitions, Long Term structural change of plasmid DNA, Molecular self-assembly, Biomolecular stabilization constant measurement, Development of bioactive surfaces, Cantilever based optical interfacial force microscopy (COIFM), Magnetic force microscopy (MFM) using electrostatic force modulation, Electrochemical scanning tunneling microscopy (EC-STM), Nanotribology using friction force microscopy (FFM), AFM-FET hybrid biosensor, SPM based nanolithography.

### (iv) Research Experiences

Dr. Kim's research is focused on molecular scale investigation of bio-molecular systems such as proteins, DNAs, cells, and bacteria using various scanning probe techniques including COIFM, STM, AFM, and MFM. The COIFM, which stands for "cantilever based optical interfacial force microscope," is a special scanning probe microscope recently developed by Dr. Kim for biophysics research at Boise State University. Kim's group currently uses the COIFM for investigating phase transition of interfacial water, which is important in understanding biomolecular systems such as antifreeze proteins. The instrument is also used to probe the metastable states of molecular interactions between two biomolecules. This research is funded from National Science Foundation. Another current research project that Dr. Kim is conducting is the investigation of organic molecular recognitions in electrochemical environments by scanning tunneling microscopy (STM). The competitive roles of intermolecular and adsorbate-substrate interactions in molecular ordering is a subject currently being studied using STM. Another project is the study of an enzyme system, 5-methyl thioadenosine/s-adenosylhomocysteine nucleosidase (MTAN) extracted from Escherichia coli, by measuring a biomolecular stabilization constant using a novel atomic force microscope (AFM) technique. Kim's group is also studying the relationship between topography and magnetic structures by a recently developed magnetic force microscope that employs a novel electrostatic force modulation.

### (v) Publications (Peer Reviewed)

1. B. I. Kim, J. Rice, H. Joo, and J. Holmes, "Measuring a Stabilization Constant between Two Bio-Molecules using Atomic Force Microscopy," submitted to *Biophysical J.* for publication on 4/22/2011 (under review).
2. B. I. Kim, "Direct Observation of Polymer-like Water Structure by Cantilever-Based Optical Interfacial Force Microscopy," submitted to *Phys. Rev. Lett.* for publication on 3/4/2011 (under revision).
3. B. I. Kim, J. A. Rasmussen and E. J. Kim, "Large Oscillatory Forces Generated by Interfacial Water under Shear Modulation between Two Hydrophilic Surfaces," submitted *Appl. Phys. Lett.* for publication on 2/17/2011 (under revision).
4. B. I. Kim, Reilly Clark, and Tyler Clark, "Long-Term Structural Changes of Plasmid DNA Studied by Atomic Force Microscopy," *Scanning* **33**, 1–8 (2011).
5. B. I. Kim, J. R. Bonander, and J. A. Rasmussen, "Simultaneous measurement of normal and friction forces using a cantilever-based optical interfacial force microscope," *Rev. Sci. Instrum.* **82**, 053711 (2011).
6. B. I. Kim, "Nanotribology and nanoindentation using advanced scanning probe techniques," *Scanning*, **32**: v–vi. (2010)
7. B. I. Kim, "Separation of Topographic Features from Magnetic Force Images using Capacitive Coupling Effect," *Rev. Sci. Instrum.* **80**, 023702 (2009).
8. J. R. Bonander and B. I. Kim, "Cantilever Based Optical Interfacial Force Microscope", *Appl. Phys. Lett.* **92**, 103124 (2008)
9. J. Philip, A. Punnoose, B. I. Kim, K. M. Reddy, S. Layne<sup>1</sup>, J. O. Holmes, B. Satpati, P. R. Leclair, T. S. Santos and J. S. Moodera, "Carrier-controlled ferromagnetism in transparent oxide semiconductors," *Nature Materials* **5**, 298-304 (2006)
10. B. I. Kim, "Chiral Recognition of PVBA on Pd(111) and Ag(111) Surfaces", *Langmuir* **22**, 9272-9280 (2006)
11. B. I. Kim, "Direct Comparison Between Phase Locked Oscillator And Direct Resonance Oscillator In The Noncontact Atomic Force Microscopy Under Ultrahigh Vacuum", *Rev. Sci. Instrum.* **75**, 5035(2004)
12. B. C. Bunker, B. I. Kim, J. E. Houston, S. T. Picraux, R. Rosario, A. A. Garcia, M. Hayes, and D. Gust, "Observations of Photo-Switching in Tethered Spiropyrans Using the Interfacial Force Microscope" *Nano Letters* **3**, 1723 (2003).
13. B. C. Bunker, D. L. Huber, R. P. Manginell, B. -I. Kim, A. K. Boal, G. D. Bachand, S. B. Rivera, J. M. Bauer, C. M. Matzke, "Incorporation of Bioactive Materials into Integrated Systems", *Proc. SPIE* **5220** 28 (2003).
14. D. L. Huber, R. P. Maginell, M. A. Samara, B. -I. Kim, and B. C. Bunker, "Programmed Adsorption and Release of Proteins in a Microfluidic Device", *Science* **301**, 352 (2003).
15. B.-I. Kim, C. Cai, X. Deng, S. S. Perry, "Adsorption-induced chirality influences surface orientation in organic self-assembled structures: an STM study of PVBA on Pd(111)", *Surf. Sci.* **538**, 45 (2003).
16. L. C. Fernandez-Torres, B.-I. Kim, S. S. Perry, The frictional response of VC(100) surfaces: Influence of 1-octanol and 2,2,2-trifluoroethanol adsorption, *Tribology Letters* **15**, 43 (2003).

17. X. Chen, S. Wang, Y. L. Yang, L. Smith, N. J. Wu, B.-I. Kim, S. S. Perry; A. J. Jacobson, A. Ignatiev, Electrical conductivity relaxation studies of an epitaxial  $\text{La}_{0.5}\text{Sr}_{0.5}\text{CoO}_{3-\delta}$  thin film, *Solid State Ionics* **146**, 405 (2002).
18. R. L. Guenard, L. C. Fernandez-Torres, B.-I. Kim, S.S. Perry, P. Frantz, S. V. Didziulis, Selective surface reactions of single crystal metal carbides: alkene production from short chain alcohols on titanium carbide and vanadium carbide, *Surf. Sci.* **515**, 103 (2002)
19. B. I. Kim, S. Lee, R. L. Guenard, L. C. Fernandez-Torres, S. S. Perry P. Frantz and S. V. Didziulis, "Chemical Modification of the Interfacial Frictional Properties of Vanadium Carbide Through Ethanol Adsorption", *Surf. Sci.*(2001) **481**, 185 (2001)
20. C. A. Mims, N. I. Joos, P. A.W. van der Heide, A. J. Jacobson, C. Chen, C. W. Chu, B.-I. Kim, S. S. Perry, Oxygen transport in oxide thin film structures oriented  $\text{La}_{0.5}\text{Sr}_{0.5}\text{CoO}_{3-x}$  on single-crystal yttria-stabilized zirconia, *Electrochemical and Solid State Letters* **3**, 59 (2000).
21. H. Lee, S. M. Lee, E. T. Ada, B.-I. Kim, M. Weiss, S. S. Perry, J. W. Rabalais, Shallow implantation of  $\text{Ti}^+$  ions in sapphire [ $a\text{-Al}_2\text{O}_3(0001)$ ], *Nucl. Instrum. Meth. B* **157**, 226 (1999).
22. B. I. Kim, U. H. Pi, S. Yoon and Z. G. Khim, "Lithography by tapping mode atomic force microscope with electrostatic force modulation", *Appl. Phys. A* **66**, s95 (1998).
23. B. I. Kim, J. W. Hong, J. I. Kye, Z. G. Khim and S. Yoon, "Construction of Magnetic Force Microscope and its Application to Magnetic Multilayer Films" *J. Kor. Phys. Soc.* **31**, S79 (1997).
24. J. W. Hong, B. I. Kim, J. I. Kye and Z.G. Khim, "Effect of electrostatic force and tapping mode operation of atomic force microscope" *J. Kor. Phys. Soc.* **31**, S83 (1997).
25. J. I. Kye, W. K. Park, B. I. Kim, Z. G. Khim, G. T. Jeong, D. H. Lee, T. E. Shim, and J. G. Lee, Single Electron Tunneling Effect in YBCO Film, *J. Kor. Phys. Soc.* **29**, 354 (1996).
26. G.T. Jeong, J.I. Kye, W.K. Park, J.W. Hong, B. I. Kim, and Z.G. Khim, "Observation of Coulomb Staircase in YBCO Film", *High Temperature Superconductivity* **5**, 261 (1995).
27. B. I. Kim, J. W. Hong, G. T. Jeong, S. H. Moon, D. H. Lee, T. U. Shim and Z. G. Khim, "Effect of  $\text{Mg}(\text{OH})_2$  On  $\text{YBa}_2\text{Cu}_3\text{O}_7$  thin film on  $\text{MgO}$  by AFM", *J. Vac. Sci. Technol.* **B12(3)**, 1631 (1994).
28. W. Jo, H-J. Cho, T. W. Noh, B.-I. Kim, D\_Y. Kim, Z. G. Khim, and S-I. Kwun, Structural and electro-optic properties of pulsed laser deposited  $\text{Bi}_4\text{Ti}_3\text{O}_{12}$  thin films on  $\text{MgO}$ , *Appl. Phys. Lett.* **63**, 2199 (1993).

(vi) **Patent Pending and Invention Disclosure**

- Inventor: Byung Kim, Invention Title:“ Invention of a simultaneous measurement technique of normal and friction forces using a cantilever-based optical interfacial force microscope,” Boise State University Invention Disclosure Form (submitted on May 13, 2011).
- Inventor: Byung Kim, Invention Title:“Cantilever Based Optical Interfacial Force Microscope (COIFM),” submitted to US Patent and Trademark Office on April 9, 2010.
- Inventor: Byung Kim, Invention Title:“ High-Speed Atomic Force Microscope (HS AFM) Using an Angular Laser-Beam Detection (ALBD) Scheme for Simultaneous Optical Imaging with Improved Resolution,” Boise State University Invention Disclosure Form (submitted on August 10, 2009).

(vii) **Memberships and Professional Services**

Member of Biophysical Society

Member of American Vacuum Society  
 Guest Editor of Journal *Scanning* (2009-present)  
 NSF MRI, NSF IDBR Review panelist (2009, 2010)  
 Textbook Review Service (four book manuscripts in Biophysics and Analog Electronics)  
 Proposal Reviewer of NSF, Research Corporation, and others  
 Refereeing Review Service of 27 Papers from *Nanotechnology*, *Langmuir*, *Ultramicroscopy*, *Journal of Micromechanics and Microengineering*, *Scanning*, *IEEE Sensors*, *Applied Physics Letters*, *Journal of Applied Physics*, and *Journal of Adhesion Science and Technology*  
 Member of the Institutional Biosafety Committee (IBC) of Boise State University (2004 – 2007)  
 Reviewer of the Faculty Research Grants (2005-2006)  
 Tenure/Promotion Committee of Physics Department (2010- Present)  
 Member of the Honor & Awards Committee of College of Arts and Sciences (2005-2006, 2009-2010)  
 Member of the Mini Development Committee of College of Arts and Sciences (2005-2006)  
 Member of the Bio/Nanophysics Faculty Search Committee of Physics Department (2005-2006)

(viii) **Research Supports (~\$450,000)**

1. **NATIONAL SCIENCE FOUNDATION:** “IDBR: RUI: Development of a Cantilever Based Optical Interfacial Force Microscope,” Amount: \$240,181 Time Period: 06/01/09 - 05/31/12; **PI: Byung Kim**
2. **THE PETROLEUM RESEARCH FUND:** “Chiral Recognition of PVBA on fcc(111) Surfaces in Electrochemical Solutions”; Agency: PRF AMERICAN CHEMICAL SOCIETY, Amount: **\$40,000**; Time Periods: 6/1/2007-8/31/2009; **PI: Byung Kim**.
3. **COTTRELL COLLEGE SCIENCE AWARDS;** “Scanning Probe Microscopy of Interfacial Water Confined between Silica Surfaces”; Agency: Research Corporation; Amount: **\$45,683**; Time Periods: 05/11/07 - 05/12/09; **PI: Byung Kim**.
4. **INBRE Summer 2006 INBRE UG Fellowship Prospective Mentor;** “Summer Undergraduate Fellowship Mentor“; Agency: Idaho BRIN/INBRE Program; Amount : **\$6,000** (\$5,000 for UG Salary); Time Periods: 10 weeks (summer 2005); **PI: B. Kim**
5. **NSF EPSCoR Startup Augmentation funding;** “Development of Interfacial Force Microscope for Water Study”; Agency: University of Idaho; Time Periods : 1 year (June 1, 2005 to May 31, 2006); Amount: **\$10,000**; PIs: **Byung Kim (PI)**
6. **NIH-SBIR I - Subcontract;** “Bypassing Fluidics in Proteomic Screening”, Agency : Potentia Pharmaceuticals, Inc., Amount : **\$100,814** ; Time Periods : 1 year (June 1, 2005 to Nov 30, 2006); PIs: **Byung Kim (PI)** and Russell, Dale
7. **Collaborative Grant Improvement Initiative (CGII);** Achieving excellence in research and scholarship “Biophysical and Biochemical Characterization of Protein Structure and Molecular Interactions in Cell Signaling”, Agency : Boise State University; Amount: **\$150,000** for 2 year. Time periods :2 years ( June 2005 to May 2007); PIs: J. Oxford (**PI**), H. Charlier, N. Hazeki-Taylor, **B. Kim**, B. Knowlton, J. Peloquin, A. Punnoose, and S. Smith ( co -PIs)
8. **Faculty Research Initiation Grants (FRIG);**“High-Speed AFM For Biomolecular Studies,”; Agency : Boise State University –ORA; Time Periods: 1 year (July 2005-June 2006), Amount:**\$15,000**; PIs: **Byung Kim (PI)**

9. **Faculty Research Grants (FRG)**; “Single molecular studies of chiral recognition on fcc(111) surfaces,”; Agency : Boise State University –ORA; Time Periods: 1 year (July 2005 - June 2006), Amount: **\$5,000**; PIs: Byung Kim (PI)

(ix) **Presentations** (since joining BSU; \* marks undergraduate research assistants)

1. Byung Kim, “Single Molecule Structural Transitions of Water Polymer Chains in a Nanoscale Confined Space Studied by COIFM” AVS 57th International Symposium & Exhibition, November 17 - November 22, 2010, Albuquerque, NM, USA.
2. Edward Kim\*, Luke Smith\*, Rob Schreiber\*, and Byung Kim, “Elastomer Insulated Tip for Cantilever Based Optical Interfacial Force Microscope in Liquid” 7th Annual Undergraduate Research & Scholarship Conference 2010, April 12, 2010, Student Union Building, Boise State University.
3. Jared Rasmussen\* and Byung I. Kim, “Entropy of Water Chains and Freely Jointed Chain Model: Humidity Dependence Study.” 7th Annual Undergraduate Research & Scholarship Conference 2010, April 12, 2010, Student Union Building, Boise State University.
4. Joey Hanson\* and Byung Kim, “Chiral Recognition of 4, 4’ Biphenyl-dicarboxylic acid on Pd(111) and Au(111) Studied by Electrochemical-Scanning Tunneling Microscopy,” 7th Annual Undergraduate Research & Scholarship Conference 2010, April 12, 2010, Student Union Building, Boise State University.
5. Reilly Clark\*, Tyler Clark\*, and Byung I. Kim, “The Uncoiling of Plasmid DNA over Time.” 7th Annual Undergraduate Research & Scholarship Conference 2010, April 12, 2010, Student Union Building, Boise State University.
6. Ryan Boehm\* and Byung Kim, “Dual-Feedback Atomic Force Microscope Using an Angular Laser Beam Detection Scheme for Simultaneous Optical Imaging with Improved Resolution.” 7th Annual Undergraduate Research & Scholarship Conference 2010, April 12, 2010, Student Union Building, Boise State University.
7. Edward Kim\*, Thanh Tran, Luke Smith, and Byung Kim, “Scanning Probe Microscopy of Interfacial Water Confined between Silica Surfaces,” 6th Annual Undergraduate Research & Scholarship Conference 2009, April 20, 2009, Student Union Building, Boise State University.
8. Joey Hanson\*, Travis Reynolds\*, and Byung Kim, “Intercalation Process of Acidic Ions into Graphite Atomic Steps Studied by Electrochemical-Scanning Tunneling Microscopy,” 6th Annual Undergraduate Research & Scholarship Conference 2009, April 20, 2009, Student Union Building, Boise State University.
9. Byung Kim, Jeremy Bonander\*, Edward Kim\*, and Thanh Tran\*, “Scanning Probe Microscopy of Interfacial Water Confined Between Silica Surfaces,” AVS 56th International Symposium & Exhibition, November 8 - November 13, 2009, San Jose, CA, USA.
10. B. I. Kim, “Separation of Topographic Features from Magnetic Force Images using Capacitive Coupling Effect,” AVS 55th International Symposium, October 19-24, 2008, Hynes Convention Center, Boston, MA
11. J. O. Holmes\*, B. I. Kim, P. Deschatelets, N. Minskoff and D. L. Russell, “An AFM-PMOS FET Biosensor for Proteomic Screening,” 5<sup>th</sup> Undergraduate Research and Scholarship Conference, April 14th, 2008, Jordan Ballroom of the Student Union Building, Boise Sate University. Joe Holmes was awarded an outstanding research achievement award at Boise State University in 2008
12. E. J. Kim\*, B. I. Kim, and J. R. Bonander\*, “High-Speed Atomic Force Microscopy Combined with

- Optical Microscopy for Biological Studies” 5<sup>th</sup> Undergraduate Research and Scholarship Conference, April 14th, 2008, Jordan Ballroom of the Student Union Building, Boise Sate University.
13. Thanh Tran\* and Byung Kim, “Probing Interfacial Water in Confined Spaces with a Novel Cantilever Based Optical Interfacial Force Microscope,” Idaho Utah Section of AAPT 27th Annual Spring Meeting March 28 - 29, 2008, Boise State University, West Campus, Nampa, Idaho 83687.
  14. Travis Reynolds\* and Byung Kim, “Graphite Intercalation Process in Perchloric Acid Solutions Studied by Electrochemical-Scanning Tunneling Microscopy and Cyclic Voltammetry,” Idaho Utah Section of AAPT 27th Annual Spring Meeting March 28 - 29, 2008, Boise State University, West Campus, Nampa, Idaho 83687.
  15. B. I. Kim and J. Bonander\*, “Humidity Dependent Ordering of Water and its Effect on Adhesion and Friction between Silica Surfaces,“ AVS 54th International Symposium & Exhibition, Oct 14-19,2007, Washington State Convention Center, Seattle, WA.
  16. B. I. Kim, J. Rice\*, J. Holmes\*, and K. Cornell, “Probing an Enzymatic Transition State Using Atomic Force Microscopy.” Symposium Biomedical/Biorelated Materials' at the AAASPD conference, Boise, June 17-21, 2007 (invited speaker).
  17. J. O. Holmes\*, B. I. Kim, P. Deschatelets, N. Minskoff and D. L. Russell, “An AFM-PMOS FET Biosensor for Proteomic Screening,” Undergraduate Research and Scholarship Conference, April 16th, 2007, Jordan Ballroom of the Student Union Building, Boise Sate University. Joe Holmes was awarded an outstanding research achievement award at Boise State University in 2007 (Attached a letter from Associate Dean Helen Lojek to Joe Holmes)
  18. J. Bonander\* and B. I. Kim, “Development of a High-speed Atomic Force Microscope,” Undergraduate Research and Scholarship Conference, April 16th, 2007, Jordan Ballroom of the Student Union Building, Boise Sate University.
  19. J. O. Holmes\*, B. I. Kim, P. Deschatelets, N. Minskoff and D. L. Russell, “An AFM-PMOS FET Biosensor for Proteomic Screening,” Annual Boise State Day at the Legislature Date, 01/17/2007, Idaho State Capitol Building, Boise Idaho.
  20. J. Bonander\* and B. I. Kim, “Development of a High-speed Atomic Force Microscope,” Annual Boise State Day at the Legislature Date, 01/17/2007, Idaho State Capitol Building, Boise Idaho.
  21. B. I. Kim, J.L.Rice\*, K.A. Cornell, P. Deschatelets, "Single Molecule Force Spectroscopy on 5-Methyl thioadenosine/S-Adenosylhomocysteine Nucleosidase (MTAN) from Escherichia coli by Atomic Force Microscopy", AVS 53th International Symposium & Exhibition, Nov 12-17,2006, Moscone West, San Francisco, CA.
  22. J. L. Rice\* and B. I. Kim, “Probing the single molecular unbinding force between MTAN and HIA using atomic force microscopy”, 5th Annual INBRE Research Conference, August 6- 8, 2006, Coeur d'Alene, ID.
  23. B.I. Kim, "Humidity Dependent Ordering of Water and its Effect on Adhesion and Friction between Silica Surfaces" Gordon Research Conference on TRIBOLOGY, 06/18/2006 - 06/23/2006, Colby College, Waterville, ME. The PI's participation at this conference was due to the invitation of Vice-Chair Dr. Wahl. They supported the PI's travel expense partially with GRC chair funds in the amount of \$660.
  24. J.J. Durrant\*, R. Nuxoll, and B. I. Kim, “*Development of Novel Atomic Force Microscopy for Biological Studies*,” Undergraduate Research and Scholarship Conference, April 17th, 2006, Jordan Ballroom of the Student Union Building, Boise Sate University.

25. J. Holmes\*, K. Cornell, B. I. Kim and P. Deschatelets, “*Single Molecular Antibody-Antigen Interactions Studied by Atomic Force Microscopy*” Undergraduate Research and Scholarship Conference, April 17th, 2006, Jordan Ballroom of the Student Union Building, Boise State University.
26. J.J. Durrant\*, R. Nuxoll, and B. I. Kim, “*Development of Novel Atomic Force Microscopy for Biological Studies*” Annual Boise State Day at the Legislature Date, January 18, 2006 4th floor Rotunda, Idaho State Capitol Building, Boise Idaho
27. J. Holmes\*, K. Cornell, and B. I. Kim, “*Single Molecular Antibody-Antigen Interactions Studied by Atomic Force Microscopy*” Annual Boise State Day at the Legislature Date, January 18, 2006 4th floor Rotunda, Idaho State Capitol Building, Boise Idaho.
28. B.I. Kim, J.O. Holmes\*, M.R. Kongara, and A. Punnoose “*A Comparative Study of the Magnetic Domain Structure of Mn Doped ITO Thin Films by Magnetic Force Microscopy,*” AVS 52nd Annual International Symposium, October 30-November 4, 2005, Hynes Convention Center Boston, MA
29. Byung Kim, “*Atomic Force Microscopy in Bio-Physics Research,*” 4th Annual INBRE Research Conference, August 7- 9, 2005, Nampa, ID
30. B.-I. Kim, “*Tuning of Orientation and Chiral Recognition of a Single Chiral Molecule in Self-Assembly through Modulation of Anchoring Sites,*” AVS 51th Annual International Symposium, November 14- November 19, 2004, Anaheim Convention Center Anaheim, CA

(x) **List of Supervised Students and Their Professional Experience**

Undergraduate Students

1. Soomin Kim (Pharmacy at U. of Michigan, May 2011 –present), PVBA Trimer Study
2. Reilly Clark (Biology, September 2010 –present), Observation of Plasmid DNA structures by AFM.
3. Ryan Boehm (Pre-Med, May 2009 –present), Development of Bio-highspeed AFM.
4. Edward Kim (Physics, July 2007 – February 2011), Biological COIFM
5. Jared Rassmussen (Health Science Studies, May 2009 – January 2011), Water structure studies.
6. Peter Olsoy (Biology, May 2010- December 2010) Analysis of poly-NIPAM data.
7. Matthew Turner (Chemistry, May 2010- December 2010) Analysis of EC-STM data.
8. Kyle Needs (MS&E, May 2010- July 2010) Analysis of Bio-AFM data.
9. Nikki Lundy (MS&E, May 2010- December 2010) Analysis of COIFM data on water.
10. Rob Schreiber (Physics, May 2009 – August 2009), Instrumentation of EC-STM, COIFM and Highspeed AFM using lab-view program
11. Luke Smith (Biology Graduate, December 2007 – August 2009), Bio-AFM.
12. Joey Hanson (Pre-Med, Junior, January 2009 – August 2009), Chiral recognition of BPBA on fcc(111)
13. Lynn Ann Hoppert (Biology, May 2009 –August 2009), Development of bioactive surfaces.
14. Veronica Fletcher (Health Science Studies, July 2009- August 2009) Development of poly-NIPAM surface for control of protein adsorption and desorption..
15. Joseph O. Holmes (physics major, February 2005 – July 2008) MFM, FET sensor and BioAFM.

16. Travis Reynolds (physics major 2 degree, May 2007 – July 2008): EC-STM
17. Thanh Tran (EE, May 2007 – July 2008) Interfacial Water
18. Daniel Barrett (Biology, September 2007-December 2007): AFM
19. Jennifer Rice (biology major, May 15,2006 – July 2006) MTN-HIA by AFM.
20. Jeremy Bonander (chemistry major & physics minor, May 15,2006 – September 2007) COIFM Development.
21. Mark Smith (Physics 2 degree, February 2007-May 2007) EC-STM
22. J.J. Durrant (physics, May 2005 – July 2006) AFM Construction.
23. Eric Hoskins (biology, February 2006 – May 2006) BioAFM.
24. Alina Schimpf (chemistry major & physics minor, 10/12/05 – 01/19/06) BioAFM.

High School Intern Students (during summer 2009)

1. Kevin Brown (Capital High School (Boise, ID) and Treasure Valley Science and Math Center) (March 2011 – present), Analysis of Water Data
2. Lauren Reeder (Boise High School and Treasure Valley Science and Math Center, Junior), (November 2010 –Present), EC-STM of organic molecules on metal surfaces.
3. Hyonjee Joo (Boise High School and Treasure Valley Science and Math Center, Junior), (July 2010 –Present), Bio-AFM.
4. Reilly Clark (Rocky Mountain High School (Meridian, ID), Senior) (May 2009 –August 2010), Observation of Plasmid DNA structures by AFM.
5. Tyler Clark (Rocky Mountain High School (Meridian, ID), Junior) (May 2009 –August 2009), Observation of Plasmid DNA structures by AFM.
6. Alex Harmon (Capital High School (Boise, ID) and Treasure Valley Science and Math Center, Junior), (May 2009 –November 2009), SPM circuit analysis, and force-distance curve analysis using freely jointed chain model.
7. Christina Lee (Boise High School, Senior), (May 2009 –August 2009), EC-STM of organic molecules on metal surfaces.