

CURRICULUM VITAE

*** 2014 – 2016 contributions in blue ***

Dr. Alexandra Ros

(née Schwarz)

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Scientific Interests

Micro- and Nanofluidics, Bioanalytical Chemistry, Microscale Migration Mechanisms, Single Cell Analysis, Functional Surface Design, Microfluidic Tools for Nanocrystallography

Education

- 10/1989 - 09/1991: **Diploma program in Chemistry** at the **Technical University Munich**, Germany
- 10/1991 - 12/1994: **Diploma program in Chemistry** at the **Ruprecht-Karls-University Heidelberg**, Germany
- 01/1995 - 10/1995: **Diploma Thesis** at the **Ruprecht-Karls-University Heidelberg**, Institute of Applied Physical Chemistry, Prof. M. Grunze, *Immobilization of Proteins and Antibodies for the Application with Acoustic Wave Sensors*
- 12/1996 – 08/2000: **PhD Thesis** at the **Federal Institute of Technology Lausanne (EPFL)**, Switzerland, Laboratory of Electrochemistry, Prof. H. Girault, *New Protein Separation and Analysis Methods*
- 04/07/2007: **Habilitation** and **Venia Legendi** in Experimental Physics, **Bielefeld University**, Physics Faculty, Germany, *Migration Phenomena and Single Cell Analysis in Microfluidic Systems*

Appointments

- 09/2000-12/2001: **Postdoc** in the Experimental Biophysics & Applied Nanoscience Group of Prof. D. Anselmetti, **Bielefeld University**, Germany
- 01/2002-12/2007: **Project leader** in the Experimental Biophysics Group, **Bielefeld University**, Germany
- 01/2008-08/2014 **Assistant Professor**, Department of Chemistry & Biochemistry, **Arizona State University**, Tempe, AZ, USA
- 08/2014-present **Associate Professor**, Department of Chemistry & Biochemistry / School of Molecular Sciences, **Arizona State University**, Tempe, AZ, USA
- 10/2014-present **Faculty Member**, Center for Applied Structural Discovery, The Biodesign Institute, **Arizona State University**, Tempe, AZ, USA
- 08/2015-07/2016 **Visiting Scientist**, Third Physical Institute, **Georg August University Göttingen**, Göttingen, Germany

Awards

- **Humboldt-Fellowship for Experienced Researchers** (2015)
- **NSF CAREER Award** (2012)
- **Best Oral Presentation Award** at Nanotech, Montreux, Switzerland (1997)

Grants and Funding

Active

CAREER: DNA Analysis Based on Dielectrophoresis

(04/01/2012 - 03/31/2017)

National Science Foundation (CBET and CMI)

Role: PI, 100% recognition (\$ 494k)

Supplement - CAREER: DNA Analysis Based on Dielectrophoresis

(08/15/2014 - 03/31/2017)

National Science Foundation (CBET and CMI)

Role: PI, 100% recognition (\$ 20k)

PFI-AIR Technology Transfer: Dielectrophoretic Fractionation of DNA for Next Generation Sequencing

(08/15/2014 - 01/31/2017, under extension)

National Science Foundation (AIR, Division of Industrial Innovation and Partnerships)

Role: PI, 100% recognition (\$ 200k)

GOALI: PFI-AIR Technology Transfer: Dielectrophoretic Fractionation of DNA for Next Generation Sequencing

(07/06/2016 - 01/31/2017, under extension)

National Science Foundation (AIR, Division of Industrial Innovation and Partnerships)

Role: PI, 100% recognition (\$ 40k)

Microfluidic Tools Improving Serial Femtosecond Nanocrystallography

(05/22/2014 - 09/30/2017)

National Science Foundation

BioXFEL Science and Technology Center

Role: Co-PI, 100% recognition (\$ 135k)

Femtosecond Nano-Crystallography of Membrane Proteins

(09/01/2015 - 08/31/2018)

National Institute of Health (NIGMS, R01)

Role: Co-PI, 15% recognition (\$ 1,500k)

MRI: Acquisition of Cryo-Em for Southwest Regional Center

(08/01/2015 - 07/31/2016)

National Science Foundation

Role: Co-PI, 3% recognition (\$ 85k)

Center for Membrane Protein Drug Discovery (MEDD)

(08/01/2015 - 07/31/2016)

National Institute of Health

Role: Co-PI, 3% recognition (\$ 800k, funding amount varies by task and year)

REU Supplement: PFI-AIR-TT: Dielectrophoretic Fractionation Of DNA For Next Generation Sequencing

(05/01/2015 - 01/31/2017)

National Science Foundation

Role: PI, 100% recognition (\$ 6k)

Submitted Funding

Fractionation of Organelles for Subpopulation and Subtype Analysis

(prospective funding period: 02/01/2016 - 08/31/2020)

National Institute of Health (NIGMS, R01)

Role: PI, 100% recognition (\$ 1,848k)

Completed Funding

Femtosecond Nano-Crystallography of Membrane Proteins

(09/01/2010 - 08/31/2015)

National Institute of Health (NIGMS, R01)

Role: Co-PI, 15% recognition (\$ 1,468k)

A Microfluidic Protein Separation Device Based on Dielectrophoresis

(09/01/2010 - 08/31/2013)

National Institute of Health (Instrument Development for Biomedical Applications, R21)

Role: PI, 100% recognition (\$ 556k)

Gas Dynamic Virtual Nozzle for Generation of Microscopic Droplet Streams

(2/1/2011-1/13/2012)

Agilent Technologies: Application and Core Technology University Research

Role: Co-PI (\$ 43k)

New Migration Mechanisms of Biomolecules in Structured Microfluidic Systems

(01/2005-12/2008)

Collaborative Research Initiative (SFB 613) of the German Science Foundation (DFG), Project D2

Role: PI (€ 393k)

Protein Separation in Microfluidic Systems with Laser-Induced Native UV-Fluorescence Detection

(04/2004-03/2007) German Science Foundation (DFG), Project An 370/1-2

Role: PI (€ 84k)

New migration mechanisms of biomolecules in structured microfluidic systems

(01/2002-12/2004)

Collaborative Research Initiative (SFB 613) of the German Science Foundation (DFG), Project D2

Role: PI (€ 114k)

Binding of Peptides and Peptide Analoga to DNA

(01/2002-12/2004)

Collaborative Research Initiative (SFB 613) of the German Science Foundation (DFG), Project K2

Role: PI (€ 106k)

Additional Funding Contribution**Donation of a 'Bioanalyzer' Instrument by Agilent Technologies, August 2009**

100% (corresponding value: \$ 26k), for use in CHM 328, donated by Agilent Technologies

Donation of an Atomic Absorption Spectrometer, September 2011

100% (corresponding value: \$ 5k), for use in CHM 328, donated by Honeywell

List of Publications**Summary:**

91 Published overall including 51 peer-reviewed publications, 17 reviewed conference proceedings, 5 patents, 4 book chapters, 1 editorial, 2 book reviews

Google Scholar H-Index = 24

(<http://scholar.google.com/citations?user=qF1eRmwAAAAJ&hl=en>)

Note: Google Scholar H-index is more comprehensive than ISI Web of Science thus also counting citations in engineering fields, which are often published in conference proceedings and counted as full publications as well as book chapters and editorials to name a few.

ISI Web of Science H - Index = 21

Author=(ros a* OR schwarz a*) AND Address=(Lausanne OR Bielefeld OR Tempe) Refined by: [excluding] Authors=(RITTMANN BE) AND [excluding] Web of Science Categories=(LANGUAGE LINGUISTICS OR LITERATURE GERMAN DUTCH SCANDINAVIAN) Timespan=1996-01-01 - 2013-04-21. Databases=SCI-EXPANDED, SSCI, A&HCI

Published Peer Reviewed Publications

1. P. V. Jones, G. L. Salmon, [A. Ros](#), Continuous Separation of DNA Molecules by Size Using Insulator-Based Dielectrophoresis, *Analytical Chemistry*, in print DOI: 10.1021/acs.analchem.6b03369
2. B. G. Abdallah, S. Roy-Chowdhury, R. Fromme, P. Fromme, [A. Ros](#), *Nanobatch protein crystallization using an actuated microfluidic gradient generator*, *Crystal Growth & Design* (2016) 16, 2074-2082 DOI: 10.1021/acs.cgd.5b01748
3. J. Luo, K. Muratore, E. Arriaga, [A. Ros](#), *Deterministic Absolute Negative Mobility for Micro- and Sub-micrometer Particles Induced in a Microfluidic Device*, *Analytical Chemistry* (2016) 88, 5920–5927 DOI: 10.1021/acs.analchem.6b00837

4. M. Yang, R. Nelson, [A. Ros](#), *Toward Analysis of Proteins in Single Cells: A Quantitative Approach Employing Isobaric Tags with MALDI Mass Spectrometry Realized with a Microfluidic Platform*, *Analytical Chemistry* (2016) 88, 6672–6679, DOI: 10.1021/acs.analchem.5b03419
5. L. Gan, Fernanda Camacho-Alanis, [A. Ros](#), *Polarizability of six-helix bundle and triangle DNA origami and their escape characteristics from a dielectrophoretic trap*, *Analytical Chemistry* (2015) 87, 12059–12064 DOI: 10.1021/acs.analchem.5b02524
6. B. G. Abdallah, N. A. Zatsepin, S. Roy-Chowdhury, J. Coe, C. E. Conrad, K. Dorner, R. G. Sierra, H. Paige Stevenson, F. Camacho Alanis, T. D. Grant, G. Nelson, D. R. James, G. Calero, J. C. H. Spence, U. Weierstall, P. Fromme, [A. Ros](#), *XFEL diffraction from protein nanocrystals isolated using a microfluidic sorter*, *Structural Dynamics* (2015) 2, 041719 DOI: 10.1063/1.4928688
7. B. G. Abdallah, J. Coe, S. Roy-Chadbury, P. Fromme, [A. Ros](#), *Protein Nanocrystal Sorting Optimized with Numerical Simulation*, *Analytical Chemistry* (2015) 87, 4159–4167 DOI:10.1021/acs.analchem.5b00589
8. F. Camacho-Alanis, A. Ros, *Protein Dielectrophoresis and the Link to Dielectric Properties*, *Bioanalysis* (2015) 7, 353–371 DOI: 10.4155/BIO.14.306
9. A. Nakano, F. Camacho-Alanis, [A. Ros](#), *Insulator-based dielectrophoresis with β -galactosidase in nanostructured devices*, *Analyst* (2015) 140, 860–868 DOI: 10.1039/C4AN01503G
10. C. Kupitz, ... T.-C. Chao, ... [A. Ros](#), ... J.C.H. Spence and P. Fromme, *Serial Time-resolved crystallography of Photosystem II using a femtosecond X-ray laser*, *Nature* (2014) 513, 261–265, DOI: 10.1038/nature13453
11. A. Nakano, J. Luo, [A. Ros](#), *Temporal and Spatial Temperature Measurement in Insulator-based Dielectrophoretic Devices*, **Analytical Chemistry** (2014) 86, 6516–6524 DOI: 10.1021/ac501083h
12. J. Luo, B. G. Abdallah, G. G. Wolken, E. A. Arriaga, [A. Ros](#), *Insulator-based dielectrophoresis of mitochondria*, **Biomicrofluidics** (2014) 8, 021801 DOI: 10.1063/1.486685
13. S. Bhattacharya, T.-C. Chao, N. Ariyasinghe, Y. Ruiz, D. Lake, R. Ros, [A. Ros](#), *Selective trapping of single mammalian breast cancer cells by insulator-based dielectrophoresis*, **Analytical and Bioanalytical Chemistry** (2014) 406, 1855–1865 DOI: 10.1007/s00216-013-7
14. W. B. Christenson, I. S. Yermolenko, B. Pochberger, F. Camacho-Alanis, [A. Ros](#), T. P. Ugarova, R. Ros, *Combined single cell AFM manipulation and TIRFM for probing the molecular stability of multi-layer fibrinogen matrices*, **Ultramicroscopy** (2014) 136, 211–215 DOI: 10.1016/j.ultramic.2013.10.009
15. B. G. Abdallah, T.-C. Chao, C. Kupitz, P. Fromme, [A. Ros](#), *Photosystem I Nanocrystal Fractionation in a Dielectrophoretic Sorter*, **ACS Nano** (2013) 7, 9129–9137, DOI: 10.1021/nn403760q
16. B. G. Abdallah, C. Kupitz, P. Fromme, [A. Ros](#), *Crystallization of the Large Membrane Protein Complex Photosystem I in a Microfluidic Channel*, **ACS Nano** (2013) 7, 10534–10543, DOI: 10.1021/nn402515q
17. J.-U. Kreft, C. Plugge, V. Grimm, C. Prats, J. Leveau, T. Banitz, S. Baines, J. Clark, [A. Ros](#), I. Klapper, C. Topping, T. Field, A. Schuler, E. Litchman, N. Mabrouk, F. Hellweger, *Small, simple yet smart: How Observing and Modeling Individual Microbes Advances Science*, **PNAS** (2013) 110, 18027–18028 DOI: 10.1073/pnas.1317472110
18. L. Gan, T.-C. Chao, F. Camacho-Alanis, [A. Ros](#), *Six Helix Bundle and Triangle DNA Origami Insulator-Based Dielectrophoresis*, **Analytical Chemistry** (2013) 85, 11427–11434, DOI: 10.1021/ac402493u
19. A. Nakano, [A. Ros](#), *Protein Dielectrophoresis: Advances, Challenges and Applications*, **Electrophoresis**, (2013) 34, 1085–1096 DOI: 10.1002/elps.201200482 **invited contribution**
20. R. Martinez-Duarte, F. Camacho-Alanis, P. Renaud, [A. Ros](#), *Dielectrophoresis of DNA using 3D Carbon Electrodes*, **Electrophoresis** (2013) 34, 1113–1122 DOI: 10.1002/elps.201200447
21. A. Nakano, F. Camacho Alanis, T.-C. Chao, [A. Ros](#), *Tuning Streaming Dielectrophoresis of Proteins*, **Biomicrofluidics** (2012) 6, 034108 DOI: 10.1063/1.4742695
22. M. Yang, T.-C. Chao, [A. Ros](#), *Direct Detection of Peptides and proteins on a Microfluidic Platform with MALDI Mass Spectrometry*, **Analytical and Bioanalytical Chemistry** (2012) 404, 1681–1689 DOI: 10.1007/s00216-012-6257-3

23. F. Camacho Alanis, L. Gan, A. Ros, *Transitioning Streaming to Trapping in DC Insulator-based Dielectrophoresis for Biomolecules*, **Sensors and Actuators B** (2012) 173, 668– 675 DOI: 10.1016/j.snb.2012.07.080
24. T.-C. Chao, S. Bhattacharya, A. Ros, *Microfluidic Gel Electrophoresis in the Undergraduate Laboratory Applied to Food Analysis*, **Journal of Chemical Education** (2012) 89, 125–129 DOI: 10.1021/ed101064p
25. A. Nakano, F. Camacho Alanis, T.-C. Chao, A. Ros, *Immunoglobulin G and Bovine Serum Albumin Streaming Dielectrophoresis in a Microfluidic Device*, **Electrophoresis** (2011) 32, 2314-2322 DOI: 10.1002/elps.201100037 **invited contribution**
26. S. Bhattacharya, T.-C. Chao, A. Ros, *Insulator-Based Dielectrophoretic Single Particle and Single Cancer Cell Trapping*, **Electrophoresis** (2011) 32, 2550-2558 DOI: 10.1002/elps.201100066 **invited contribution**
27. A. Gencoglu, F. Camacho Alanis, V. T. Nguyen, A. Nakano, A. Ros, A. Minerick, *Quantification of pH Gradients and Implications in Insulator-Based Dielectrophoresis of Biomolecules*, **Electrophoresis** (2011) 32, 2436–2447 DOI: 10.1002/elps.201100090
28. M. Viefhues, S. Manchanda, T.-C. Chao, D. Anselmetti, J. Regtmeier, and A. Ros, *Physisorbed Surface Coatings in Poly(dimethylsiloxane) and Quartz Microfluidic Devices*, **Analytical and Bioanalytical Chemistry** (2011) 401, 2113-2122 DOI: 10.1007/s00216-011-5301-z
29. J. Regtmeier, L. Bugonovic, R. Eichhorn, A. Ros, D. Anselmetti, *Dielectrophoretic Trapping and Polarizability of DNA: The Role of Spatial Conformation*, **Analytical Chemistry** (2010) 82, 7141-7149 DOI: 10.1021/ac1005475
30. T.-C. Chao, A. Ros, *Microfluidic Single Cell Analysis of Intracellular Compounds*, **J. Royal Society Interface** (2008) 5, S139-S150 DOI: 10.1098/rsif.2008.0233.focus
31. D. Greif, L. Galla, A. Ros, D. Anselmetti, *Single cell analysis in full body quartz glass chips with native UV laser-induced fluorescence detection*, **Journal of Chromatography A** (2008) 1206, 83-88 DOI: 10.1016/j.chroma.2008.07.013
32. J. Regtmeier, R. Eichhorn, S. Grauwil, D. Anselmetti, P. Reimann, A. Ros, *Acceleration of Absolute Negative Mobility*, **Journal of Separation Science** (2007) 30, 1461-1467
33. J. Regtmeier, T. T. Duong, R. Eichhorn, D. Anselmetti, A. Ros, *Dielectrophoretic manipulation of DNA: Separation and polarizability*, **Analytical Chemistry** (2007), 79, 3925-3932
34. J. Regtmeier, R. Eichhorn, T. Duong, P. Reimann, D. Anselmetti, A. Ros, *Pulsed-field Separation of Particles in a Microfluidic Device*, **European Physical Journal E** (2007) 22, 335-340
35. J. Regtmeier, R. Eichhorn, T. Duong, P. Reimann, D. Anselmetti, A. Ros, *Paradoxical Brownian Motion in a Microfluidic Device: Absolute Negative Mobility*, **European Physical Journal Special Topics** (2007) 143, 159–164
36. W. Hellmich, D. Greif, C. Pelargus, D. Anselmetti, A. Ros, *Improved native UV laser induced fluorescence detection for single cell analysis in poly(dimethylsiloxane) microfluidic devices*, **Journal of Chromatography A** (2006) 1130, 195-200
37. A. Ros, W. Hellmich, J. Regtmeier, T. T. Duong, D. Anselmetti, *Bioanalysis in Structured Microfluidic Systems*, **Electrophoresis** (2006) 27, 2651-2658
38. D. Anselmetti, N. Griemla, W. Hellmich, K. Leffhalm, A. Ros, R. Ros, and K. Tönsing, *Single Cell Analytics for NanoBiology*, **Nanobiotechnology** (2005) 1, 267-270
39. A. Ros, R. Eichhorn, J. Regtmeier, T. Duong, P. Reimann, D. Anselmetti, *Paradoxical Brownian Motion: Absolute Negative Particle Mobility*, **Nature** (2005) 436, 928
40. W. Hellmich, C. Pelargus, K. Leffhalm, A. Ros, D. Anselmetti, *Single Cell Manipulation, Analytics and Label-free Protein Detection in Microfluidic Devices for NanoSystems Biology*, **Electrophoresis** (2005) 26, 3689-3696
41. W. Hellmich, J. Regtmeier, T. Duong, R. Ros, D. Anselmetti, A. Ros, *Poly(oxyethylene) Based Surface Coatings for Poly(dimethylsiloxane) Microchannels*, **Langmuir** (2005) 21, 7551-7557
42. M. Streek, F. Schmid, T. Duong, D. Anselmetti, A. Ros, *Two-state migration of DNA in a structured microchannel*, **Phys. Rev. E** (2005) 71, 011905

43. M. Streek, F. Schmid, T. Duong, A. Ros, *Mechanisms of DNA separation in entropic trap arrays: A Brownian dynamics simulation*, **J. Biotechnology** (2004) 112, 79-89
44. A. Ros, W. Hellmich, T. Duong, D. Anselmetti, *Towards Single Molecule Analysis in PDMS microdevices: From the Detection of Ultra Low Dye Concentrations to Single DNA Molecule Studies*, **J. Biotechnology** (2004) 112, 65-72
45. R. Eckel, R. Ros, A. Ros, S.-D. Wilking, N. Sewald, D. Anselmetti, *Identification of Binding Mechanisms in Single Molecule - DNA Complexes*, **Biophysical Journal** (2003) 85, 1968-1973
46. T. Duong, G. Kim, R. Ros, M. Streek, F. Schmid, J. Brugger, D. Anselmetti, A. Ros, *Size Dependent Free Solution DNA Electrophoresis in Structured Microfluidic Systems*, **Microelectronic Engineering** (2003) 67-68C, 905-912
47. A. Ros, M. Faupel, H. Mees, J. van Ostrum, R. Ferrigno, F. Reymond, P. Michel, J. S. Rossier, H. H. Girault, *Protein Purification by Off-Gel Electrophoresis*, **Proteomics** (2002) 2, 151-156
48. A. Schwarz, O. Bagel, H. H. Girault, *A Sensitive Electrochemical Protein Quantification Method*, **Electroanalysis** (2000) 12, 811-815
49. J. S. Rossier, P. Bercier, A. Schwarz, S. Loridant, H. H. Girault, *Topography, Crystallinity and Wettability of Photoablated PET Surfaces*, **Langmuir** (1999) 15, 5173-5178
50. J. S. Rossier, A. Schwarz, F. Reymond, R. Ferrigno, F. Bianchi, H.H. Girault, *Microchannel Networks for Electrophoretic Separations*, **Electrophoresis** (1999) 20, 727-731
51. A. Schwarz, J. S. Rossier, E. Roulet, N. Mermoud, M. A. Roberts, H. H. Girault, *Micropatterning of Biomolecules on Polymer Substrates*, **Langmuir** (1998) 14, 5526-5531

Reviewed Conference Proceedings:

52. A. Echelmeier, G. Nelson, B. G. Abdallah, D. James, S. Roy-Chowdhury, A. Tolstikova, V. Mariani, R. A. Kirian, D. Oberthür, K. Dörner, P. Fromme, H. N. Chapman, U. Weierstall, J. C. H. Spence, A. Ros, *Biphasic Droplet-Based Sample Delivery of Protein Crystals for Serial Femtosecond Crystallography with an X-Ray Free Electron Laser*, **µTAS Proceedings** (2015) 1374-1376
53. B. G. Abdallah, M. Sawtelle, A. Ros, *High Throughput Nanoparticle Sorting for Serial Femtosecond Crystallography*, **µTAS Proceedings** (2014) 1305-1307
54. A. Nakano, F. Camacho Alanis, A. Ros, *Insulator-based Dielectrophoretic Behavior of β -Galactosidase under DC and Low Frequency AC Conditions*, **µTAS Proceedings** (2014) 2468-2470
55. M. Yang, T.-C. Chao, R. Nelson, A. Ros, *Protein identification and quantification for single cell analysis by coupling a microfluidic platform with MALDI-TOF*, **µTAS Proceedings** (2013) 1039-1041
56. B. Abdallah, T.-C. Chao, P. Fromme, A. Ros, *Size Based Nanoparticle Separation using Dielectrophoretic Focusing for Femtosecond Nanocrystallography of Membrane Proteins*, **µTAS Proceedings** (2012) 458-460
57. R. B. Doak, D. P. De Ponte, G. Nelson, F. Camacho-Alanis, A. Ros, J. C. H. Spence, U. Weierstall, *Microscopic Linear Liquid Streams in Vacuum: Injection of Solvated Biological Samples into X-Ray Free Electron Lasers*, Rarefied Gas Dynamics Symposium, **AIP Conf. Proc.** **1501** (2012) 1314-1323
58. A. Nakano, F. Camacho-Alanis, T.-C. Chao, A. Ros, *Systematic Investigation of Insulator-Based Protein Dielectrophoresis Under DC Condition*, **µTAS Proceedings** (2011), 644-646
59. J. Regtmeier, R. Eichhorn, P. Reimann, A. Ros and D. Anselmetti, *DNA Diffusion Control*, **µTAS Proceedings** (2008) 2, 1480-1482
60. J. Regtmeier, H. Höfemann, R. Eichhorn, D. Anselmetti, A. Ros, *Separation and Polarizability of DNA by Dielectrophoresis*, **µTAS Proceedings** (2007), 242-246
61. D. Greif, D. Anselmetti, A. Ros, *Single Cell Analysis by Native UV Laser Induced Fluorescence Detection in a PDMS Microfluidic Chip*, **µTAS Proceedings** (2007), 176-178
62. J. Regtmeier, T.T. Duong, A. Ros, D. Anselmetti, *Fast Separation of λ - and T2-DNA with Electrodeless Dielectrophoresis*, **µTAS Proceedings** (2006), 383-385
63. J. Regtmeier, R. Eichhorn, P. Reimann, A. Ros, D. Anselmetti, *Acceleration of Absolute Negative Mobility for Particle Sorting in a Microfluidic Device*, **µTAS Proceedings** (2006), 648-650

64. W. Hellmich, K. Leffhalm, A. Sischka, T. Duong, N. Jensen, K. Niehaus, K. Tönsing, [A. Ros](#), and D. Anselmetti, *Towards Single Cell Fingerprinting in Microfluidic Device Format: Single Cell Manipulation, Protein Separation and Detection*, ***µTAS Proceedings*** (2005) 1, 406-408
65. J. Regtmeier, T. Duong, R. Eichhorn, D. Anselmetti, P. Reimann, and [A. Ros](#), *Novel Migration Phenomena in Structured Microfluidic Devices*, ***µTAS Proceedings*** (2005) 1, 340-342
66. T. Duong, M. Streek, R. Ros, F. Schmid, [A. Ros](#), D. Anselmetti, *Gel-free Electrophoresis of λ - and T2-DNA in Structured Microfluidic Devices*, ***Proceedings of µTAS*** (2003) 1, 749-752
67. J. S. Rossier, [A. Schwarz](#), F. Bianchi, F. Reymond, R. Ferrigno, H. H. Girault, *Polymer Micro-Structures: Prototyping, Low-Cost Mass Production and Analytical Applications*, ***Proceedings of µTAS*** (2000), 159-162
68. [A. Schwarz](#), J. S. Rossier, F. Bianchi, F. Reymond, R. Ferrigno, H. H. Girault, *Micro-TAS on Polymer Substrates Micromachined by Laser Photoablation*, ***Proceedings of µTAS*** (1998), 241-244

Non-Reviewed Conference Proceedings:

69. B. G. Abdallah, [A. Ros](#), *Integrating microfluidic concepts in the undergraduate analytical curriculum and for high school student outreach projects*, Abstracts of papers of the American Chemical Society (2014) 248, ANYL 380
70. [A. Ros](#), *Dielectrophoretic separation of DNA*, Abstracts of papers of the American Chemical Society (2009) 238, ANYL 332
71. N. Sewald, S.D. Wilking, R. Eckel, [A. Ros](#), R. Ros, D. Anselmetti, *Probing DNA-Peptide Interaction Forces on the Single Molecule Level*, Sewald, ***Journal of Peptide Science*** (2004) 10, 261
72. S. D. Wilking, R. Eckel, R. Ros, [A. Ros](#), D. Anselmetti, N. Sewald, *Sequence-Dependent Interaction between Aliphatic Helical Peptides and DNA*, ***Journal of Peptide Science*** (2004) 10, 266

Patents:

73. G. Brehm, G. Nelson, A. Echelmeier, J. Spence, U. Weierstall, [A. Ros](#), *3D Printed Microfluidic Mixers and Nozzles for Crystallography*, provisional patent application filed (2017) case No. M17-124P
74. J. Luo, M. Yang, D. Kim, [A. Ros](#), *Tunable Insulator-Based Dielectrophoresis (iDEP) with Membrane Valves* provisional patent application filed (2016) case No. M16-249P
75. B. Abdallah, [A. Ros](#), *Microfluidic Crystallization Array Based on Gradient Mixing*, Patent application filed (2015) case No. 15-1362-PCT
76. B. Abdallah, T.-C. Chao, [A. Ros](#), *Methods, Systems and Apparatus for Size-Based Particle Separation*, case No. 12-1094-US (2013)
77. [A. Ros](#), J. Rossier, M. D. Faupel, H. H. Girault, *New Electrophoresis Method and Apparatus Thereof*, UK patent no. 0010957.9 (2000)
also WO0186279, US2003104449, EP1281073, EP1281073, DE60112276T

Book chapters:

78. B. Abdallah, [A. Ros](#), *Surface coating of microfluidic-based medical devices*, in "Microfluidic devices for biomedical applications", XiuJun James Li and Yu Zhou (Editors), **invited chapter**, Woodhead Publishing (2013) ISBN-13: 978 0 85709 697 5
79. D. Greif, [A. Ros](#), *Protein Analysis of Single Cells in Microfluidic Format*, in "Single Cell Analysis", Dario Anselmetti (Editor), Wiley VCH (2009) ISBN: 978-3-527-31864-3
80. W. Hellmich, C. Pelargus, K. Leffhalm, [A. Ros](#), D. Anselmetti, *Single Cell Manipulation, Analytics and Label-free Protein Detection in Microfluidic Devices for NanoSystems Biology* in Microfluidic Applications in "Biology: From Technologies to Systems Biology", N. Lion, J. S. Rossier, H. H. Girault (Editors), Wiley VCH (2007) ISBN 3-527-31761-9
81. J. Martini, W. Hellmich, D. Greif, A. Becker, Th. Merkle, R. Ros, [A. Ros](#), K. Toensing, and D. Anselmetti, *Systems Nanobiology: From Quantitative Single Molecule Biophysics to Microfluidic-Based Single Cell Analysis*, in "Subcellular Proteomics", Michel Faupel and Eric Bertrand (Editors), Springer, Heidelberg, (2007) ISBN: 978-1-4020-5942-1

Theses:

82. [A. Ros](#), *Migration Phenomena and Single Cell Analysis in Microfluidic Systems (translated title)*, Habilitation, Bielefeld University (2007)
83. [A. Ros](#), *New Protein Separation and Analysis Techniques*, Dissertation, École Polytechnique Fédéral de Lausanne (2000)
84. [A. Schwarz](#), *Immobilization of Antibodies and Proteins for the Application in Acoustic Sensors (translated title)*, Diploma Thesis, Universität Heidelberg (1995)

Other invited scholarly publications:

85. [A. Ros](#), M. K. Donais, *Great SciX-pectations, The Analytical Scientist* (2016) 42, 4
86. [A. Ros](#), E. Goluch, *AES sessions at SciX conference – What is coming up?* Article for the **American Electrophoresis Society** January Newsletter (2013)
87. [A. Ros](#), *Biomolecular Dielectrophoresis*, **Focus Article for the American Electrophoresis Society**, published online: http://www.aesociety.org/areas/nanoscale_biomolecule_dep.php (2011)
88. [A. Ros](#), *Microchip Methods in Diagnostics* by Ursula Bilitewski, Book Review, **Analytical and Bioanalytical Chemistry**, (2010) 397, 899 DOI: 10.1007/s00216-010-3598-7
89. [A. Ros](#), *Microfluidics in cell analysis*, **Editorial**, Special Issue in **Analytical and Bioanalytical Chemistry**, (2008) 390, 799-800 DOI: 10.1007/s00216-007-1758-1
90. [A. Ros](#), *Microfluidic Technologies for Miniaturized Analysis Systems* by Steffen Hardt and Friedhelm Schoenfeld, Book Review, **Analytical and Bioanalytical Chemistry**, (2008) 392, 777-778 DOI: 10.1007/s00216-008-2284-5
91. R. Ros, [A. Ros](#), K. Tönsing, D. Anselmetti, *Biomoleküle im Visier*, **Forschung an der Universität Bielefeld** (2002) 24, 3-7

Presentations

69 overall (conference presentations & seminar talks)

51 Invited Talks including 3 keynote lectures, 3 plenary lectures, 1 tutorial lecture, 17 department seminars, 11 invited conference talks, 1 workshop lecture

1. [A. Ros](#), Dielectrophoretic Sorting of Plasmid and Genomic DNA, AIChE /AES annual meeting, San Francisco, CA (11.2016) **Invited Conference Talk**
2. [A. Ros](#), Dielectrophoretic Sorting of Plasmid and Genomic DNA, SciX, Minneapolis, MN (08.2016), Conference Talk
3. [A. Ros](#), Microfluidics for Serial Femtosecond Crystallography, Physics Department, Georg-August University Göttingen, Göttingen, Germany (02.2016) **Invited Seminar Talk**
4. [A. Ros](#), *Deterministic Absolute Negative Mobility for sub-micrometer Bioparticle Separation*, AES (Electrophoresis Society) Annual Meeting, Salt Lake City, Utah (11.2015) Conference Talk
5. [A. Ros](#), Deterministic Absolute Negative Mobility for Sub-Micrometer Particle and Organelle Separation, FSM 2015 - International Biophysics Conference on Fluorescence Microscopy, Spectroscopy and Molecular Cell Mechanics, Mallorca, Spain (09.2015), **Invited Talk**
6. [A. Ros](#), *How we exploit dielectrophoresis for biomolecule and particle separation*, SALSA Summer School, Humboldt University Berlin (10-2015), **Invited Talk and Challenge Session**
7. [A. Ros](#), *Novel Routes for Biomolecular and Bioparticle Separation on Microfluidic Platforms*, FFF 2014, International Symposium on Field- and Flow-Based Separations, Salt Lake City, Utah (10.2014) **Invited Plenary Talk**
8. [A. Ros](#), *Dielectrophoresis Induced Paradoxical Migration for Particle Separation*, SciX 2014, (10.2014) Conference Talk

9. [A. Ros](#), *Microfluidic Tools for Structure Determination of Membrane Proteins*, 15th International Conference on the Crystallization of Biological Macromolecules, (09.2014) **Invited Conference Talk**
10. B. G. Abdallah, [A. Ros](#), *Integrating Microfluidic Concepts in the Undergraduate Analytical Curriculum and for High School Student Outreach Projects*, ACS Fall Meeting (08.2014), San Francisco, **Invited Conference Talk**
11. B. G. Abdallah, C. Kupitz, P. Fromme, [A. Ros](#), *Microfluidic Tools for Structure Determination of Proteins*, Gordon conference – Bioanalytical Sensors, Newport, Rhode Island (06.2014) Poster (selected among top 25 posters)
12. L. Gan, F. Camacho-Alanis, [A. Ros](#), *Insulator-based Dielectrophoresis of DNA Origami*, FNANO14 (04.2014) **Invited Conference Talk**
13. [A. Ros](#), *Microfluidics in the Undergraduate Analytical Lab and in Outreach Projects*, Southwestern Analytical Chemistry Professor Meeting, Arizona State University (01.2014) Conference Talk
14. B. Abdallah, C. Kupitz, P. Fromme, [A. Ros](#), *Fractionation of Nanocrystals for Femtosecond Nanocrystallography of Membrane Proteins*, AIChE and AES Annual Meeting, San Francisco (11.2013) Conference Talk
15. L. Gan, T.-C. Chao, F. Camacho Alanis, H. Yan and [A. Ros](#), *Insulator Based Dielectrophoresis for the Manipulation of DNA Origami*, AIChE and AES Annual Meeting, San Francisco (11.2013) Conference Talk
16. [A. Ros](#), *Beyond Miniaturization: Tailored Microfluidic Platforms for Biomolecular Dielectrophoresis and Mass Spectrometry*, Purdue University, Department of Chemistry, West Lafayette (09.2013) **Invited Department Colloquium**
17. [A. Ros](#), *Beyond Miniaturization: Tailored Microenvironments for Bioanalysis*, Arizona State University, Tempe (08.2013) **Department Colloquium**
18. [A. Ros](#), *A Hyphenated Microfluidics and Mass Spectrometric Approach for Single Cell Analysis*, Single Cell Genomics and Transcriptomics Asia Congress, Singapore (06.2013) **Invited Conference Lecture**
19. [A. Ros](#), *Dielectrophoresis Applied to Biomolecule Manipulation and Nanocrystal Sorting*, ISCC Conference, Palm Springs (05.2013) **Invited Conference Lecture**
20. [A. Ros](#), *Exploiting Microfluidic Environments for Dielectrophoresis of Biomolecules and Nanocrystals*, University of Arizona, Department of Chemistry, Tucson (05.2013) **Invited Department Colloquium**
21. [A. Ros](#), *Exploiting Microfluidic Environments for Dielectrophoresis of Biomolecules and Nanocrystals*, Indiana University, Department of Chemistry, Bloomington (02.2013) **Invited Department Seminar**
22. [A. Ros](#), *Nanocrystal Sorting in a Microfluidic Device*, Southwestern Analytical Chemistry Professor Meeting, Fort Collins, CO (01.2013) Conference Talk
23. [A. Ros](#), *Microfluidic Tools for Bioanalysis*, Nanoscience Seminar, Department of Physics, ASU (11.2012) **Invited Seminar Talk**
24. A. Nakano, K. Bush, [A. Ros](#), *Temperature Measurement in a Microfluidic Device for Insulator-Based Dielectrophoretic Applications*, AIChE meeting and AES annual meeting (10.2012) Conference Talk
25. A. Nakano, F. Camacho-Alanis, T.-C. Chao, [A. Ros](#), *Protein Streaming via Insulator-Based Dielectrophoresis in a Microfluidic Platform* AIChE meeting and AES annual meeting (10.2012) Conference Talk
26. [A. Ros](#), *Two Examples Showing the Potential of Microfluidics for Biomolecule Analysis: Dielectrophoresis and Single Cell Mass Spectrometry*, University of California San Diego, (04.2012) **Invited Department Colloquium**
27. [A. Ros](#), *Beyond Miniaturization: Tailored Microenvironments for Bioanalytical Applications*, IBM Research Laboratories, Rueschlikon, Switzerland (02.2012) **Invited Seminar**
28. [A. Ros](#), *Biomolecule Dielectrophoresis*, Microscale Bioseparations (MSB) Conference, Geneva, Switzerland (02.2012) **Invited Tutorial Talk**
29. M. Yang, T.-C. Chiao, R. Nelson, [A. Ros](#), *Direct coupling of microfluidics and MALDI mass spectrometry for the detection of peptides and proteins with single cell sensitivity*, Microscale Bioseparations (MSB) Conference, Geneva, Switzerland (02.2012) Poster
30. [A. Ros](#), *Direct coupling of microfluidics and MALDI mass spectrometry for single cell analysis* Southwestern Analytical Chemistry Professor Meeting 2012, Tuscon, AZ (01.2012) Conference Talk

31. A. Ros, F. Camacho-Alanis, A. Nakano, T.-C. Chao, *Insulator-Based Dielectrophoresis Applied to Immunoglobuline G and Bovine Serum Albumin Concentration*, AIChE meeting and AES annual meeting (10.2011) Conference Talk
32. A. Ros, *Dielectrophoretic Manipulation of Biomolecules in Micro- and Nanofluidic Devices*, FACSS (Federation of Analytical Chemistry and Spectroscopy) Conference, Reno (10.2011) **Invited Keynote Lecture**
33. L. Gan, H. Yan, A. Ros, *Dielectrophoretic Manipulation of Naturally Occurring and Origami DNA*, FACSS (Federation of Analytical Chemistry and Spectroscopy) Conference, Reno (10.2011) Conference Talk
34. A. Ros, *Dielectrophoretic Manipulation of Biomolecules in Micro- and Nanofluidic Devices*, Arizona State University, Tempe (09.2011) **Invited Nanoscale Science Seminar**
35. A. Ros, *Single Cell Analysis on Microfluidic Platforms*, NIMBIOS Investigative Workshop - Individual-based Ecology of Microbes, Knoxville (06.2011), **Invited Workshop Presentation**
36. A. Ros, *Beyond Miniaturization: Microstructure induced bioanalytics in lab-on-a-chip platforms*, Ecole Polytechnique Federal de Lausanne, Switerland (04.2011), **Invited Seminar**
37. A. Ros, *Beyond Miniaturization: Tailored Microenvironments for Bioanalytical Applications*, Universitaet Wien, Austria (04.2011), **Invited Department Colloquium**
38. A. Ros, *Microstructure induced bioanalytics in lab-on-a-chip platforms*, Arizona State University, Tempe (03.2011) **Invited Department Colloquium**
39. A. Ros, *Manipulating Biomolecules by Dielectrophoresis* FACSS (Federation of Analytical Chemistry and Spectroscopy Society) Meeting, Raleigh, NC (10.2010) Conference Talk
40. A. Ros, *Dielectrophoresis of Proteins for Rapid, Gel-Free Separation and Concentration* Nanotech Conference, Montreux, Switzerland (11.2010) Conference Talk
41. A. Ros, *Microstructure induced biomolecular separation and single cell analysis in a lab-on-a-chip*, Biophysics Seminar Series, Univ. of California, Davis (05.2010) **Invited Department Colloquium**
42. A. Ros, *Microstructure induced biomolecular separation and single cell analysis in a lab-on-a-chip*, Young Investigator Symposium, PMSE, ACS Meeting (03.2010) **Invited Conference Lecture**
43. A. Ros, *Towards a single cell laboratory on a chip*, HTC-11 Brugge, Belgium (01.2010) **Invited Keynote Lecture**
44. A. Ros, *Dielectrophoretic Fractionation of Biomolecules in a Microfluidic Device*, FACSS Conference, Louisville KY (10.2009) **Invited Conference Lecture**
45. A. Ros, *Dielectrophoretic Separation of DNA*, ACS Meeting, Washington DC (08.2009) **Invited Conference Lecture**
46. A. Ros, *Towards a Single Cell Laboratory on a chip*, California State University Los Angeles, Department of Chemistry and Biochemistry Seminar (11.2009) **Invited Department Colloquium**
47. A. Ros, *Microfluidics towards single cell analytics and non-intuitive separation routes*, Chemical Nanotechnology Talks IX, Frankfurt (a.M.), Germany (11.2008) **Invited Conference Lecture**
48. A. Ros, *Towards a single cell laboratory on a chip*, Department of Electrical and Computer Engineering, University of Alberta, Edmonton, Canada (10.2008) **Invited Department Seminar**
49. A. Ros, *DNA Dielectrophoresis in Microfluidic Obstacle Courses*, Nanotech Conference, Montreux, Switzerland (11.2007) Conference Talk
50. A. Ros, *Insight Microfluidics*, 13. Internationaler Kongress Frauen im Ingenieurberuf, Bielefeld, Germany (9.2007) **Invited Conference Lecture**
51. A. Ros, *Inside Microfluidic Systems: Migration Phenomena and Single Cell Analysis*, Department of Chemistry, Geneva University, Switzerland (06.2007) **Invited Department Colloquium**
52. A. Ros, *Inside Microfluidic Systems: Migration Phenomena and Single Cell Analysis*, Department of Physics, Arizona State University, Tempe, USA (05.2007) **Invited Department Colloquium**
53. A. Ros, *Inside Microfluidics: Migration Phenomena and Single Cell Analysis*, Sony Stuttgart, Germany (02.2007) **Invited Talk**
54. A. Ros, *Inside Microfluidics: Migration Phenomena and Single Cell Analysis*, Karlsruhe University, Karlsruhe, Germany (02.2007) **Invited Department Colloquium**

55. A. Ros, *Microfluidic Single Cell Analysis*, University of Rouen, France (02.2007) **Invited Department Seminar**
56. A. Ros, *Inside Microfluidics: Migration Phenomena and Single Cell Analysis*, Nanotech Conference, Montreux, Switzerland (11.2006), **Invited Plenary Lecture**
57. A. Ros, *Poly(dimethylsiloxane): Beloved and Detested Substrate in Microfluidics*, Physics of Complex Fluids Group, Twente University, Netherlands (10.2006) **Invited Department Colloquium**
58. A. Ros, *Inside Microfluidics: Migration Phenomena and Single Cell Analysis*, Leiden/Amsterdam Center for Drug Research, Leiden University, Netherlands (08.2006) **Invited Department Colloquium**
59. A. Ros, *Inside Microfluidics: Migration Phenomena and Single Cell Analysis*, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland, Institute of Chemical Sciences and Engineering (05.2006) **Invited Department Colloquium**
60. A. Ros, *Single Cell Analysis and Particle Sorting in Microfluidic Format*, Symposium on "Microfluidic Single Cell Analysis" of the Danish Society for Flow Cytometry, Copenhagen, Denmark (04.2006), **Invited Plenary Lecture**
61. J. Regtmeier, T.T. Duong, D. Anselmetti, A. Ros, *Sorting in Structured Microfluidic Devices*, Deutsche Physikalische Gesellschaft (DPG) - Spring Meeting of the Division Condensed Matter, Dresden, Germany (03.2006), **Invited Keynote Lecture**
62. A. Ros, *Migrationsphänomene und Einzelzellanalytik in Mikrofluidiksystemen*, Physics Faculty, Leipzig University, Germany (02.2006) **Invited Department Colloquium**
63. A. Ros, *New Perspectives in Microfluidics: Single Cell Analytics and Paradoxical Migration Mechanisms*, Summerschool on Biosensing in Channels, International University Bremen, Germany (08.2005) **Invited Summer School Lecture**
64. A. Ros, *The Challenge of DNA Separation*, Condensed Matter Theory, Bielefeld University, Germany (05.2001) **Invited Department Seminar**
65. A. Ros, *Protein Electrophoresis*, Applied Laser Physics, Bielefeld University, Germany (11.2000) **Invited Seminar**
66. A. Schwarz, H.H. Girault, *Polymer μ Devices for Bioanalytical Applications*, BioRad, Hercules, USA (12.1998) **Invited Seminar**
67. A. Schwarz, H.H. Girault, *Polymer μ TAS*, Golden Gate Polymer Forum, San Francisco, USA (12.1998) **Invited Seminar**
68. A. Schwarz, H.H. Girault, *Polymer Microdevices for Analytical Applications*, Laboratory of Micro- und Nanotechnology, Paul Scherrer Institut, Switzerland (05.1998) **Invited Seminar**
69. A. Schwarz, H.H. Girault, *Prototyping μ TAS in Polymers*, IBM Research Laboratories, Rüschlikon, Switzerland (08.1998) **Invited Department Seminar**

Additional 1996-2007: 15 poster presentations at scientific conferences in the field of Analytical Chemistry and Biophysics

Conference Contributions of Supervised Students

(All listed refer to contributions since 2008, presenting students underlined)

A. Poster Presentations (students):

2016:

BioXFEL 2nd International Conference (01/2016):

- A. Echelmeier, A. Ros, *Microfluidic Droplets as a Method of Sample Conservation for Serial Femtosecond X-ray Crystallography*

- B. G. Abdallah, A. Ros, *Protein Crystallization Screening using an Actuated Microfluidic Gradient Generator*

2015:

MicroTAS 2015 (10/2015):

- A. Echelmeier, G. Nelson, B. G. Abdallah, D. James, S. Roy-Chowdhury, V. Mariani, R. Kirian, D. Oberthuer, K. Doerner, P. Fromme, H. Chapman, U. Weierstall, J.C.H. Spence, A. Ros, *Biphasic Droplet-Based Sample Delivery of Protein Crystals for Serial Femtosecond Crystallography with an X-Ray Free Electron Laser*

BioXFEL 2nd International Conference (01/2015):

- B. G. Abdallah, N. A. Zatsepin, S. Roy-Chowdhury, J. Coe, C. E. Conrad, K. Dorner, R. G. Sierra, H. Paige Stevenson, F. Camacho Alanis, T. D. Grant, G. Nelson, D. R. James, G. Calero, J. C. H. Spence, U. Weierstall, P. Fromme, A. Ros, *XFEL diffraction from protein nanocrystals isolated using a microfluidic sorter*
- A. Echelmeier, G. Nelson, F. Camacho-Alanis, B. G. Abdallah, U. Weierstall, J. C. H. Spence, A. Ros *Biphasic Droplet-Based Sample Introduction for Protein Crystallography with an X-Ray Free Electron Laser*

2014:AIChE (11/2014):

- J. Luo, F. Camacho-Alanis, A. Ros, *Exploiting Absolute Negative Mobility with Dielectrophoresis for Micron Particle Separation*

SciX (formerly FACSS) conference (10/2014):

- B.G. Abdallah, M. Sawtelle, A. Ros, *Microfluidic methods to grow and fractionate membrane protein crystals (awarded an AES and a FACSS poster award)*
- J. Luo, A. Ros, *iDEP Based Numerical Simulation of Absolute Negative Mobility for the Separation of Micron and Sub-micron Bioparticles*

SLAC User Meeting/Conference (10/2014):

- B. Abdallah, C. Kupitz, P. Fromme, A. Ros, *Microfluidic Tools to Study Membrane Proteins*

MicroTAS 2014 (10/2014):

- B. Abdallah, M. Sawtelle, A. Ros, *High throughput nanoparticle sorting for serial femtosecond crystallography*

Pittcon (03/2014):

- A. Nakano, F. Camacho-Alanis, A. Ros. *Protein dielectrophoresis using insulator-based devices: Implications at Nanoconstrictions*

2013:X-ray Lasers in Biology, The Royal Society, London, England, 10/14 - 10/15/2013

- B. G. Abdallah, C. Kupitz, P. Fromme, A. Ros. *Microfluidic Tools to Study Membrane Proteins*

X-ray Lasers in Biology – Techniques, The Royal Society at Chicheley Hall, Buckinghamshire, England, 10/16 - 10/17/2013.

- B. G. Abdallah, C. Kupitz, P. Fromme, A. Ros. *Microfluidic Tools to Study Membrane Proteins (Poster)*

SciX (formerly FACSS) conference:

- J. Luo, B.G. Abdallah, G. Woken, E. Arriaga, A. Ros, *Manipulation of Mitochondria by Insulator-based Dielectrophoresis (awarded an AES and FACSS poster award)*
- F. Camacho Alanis, A. Nakano, A. Ros, *Protein Dielectrophoresis: A Promising Purification Method*

17th μ TAS (Micro-Total-Analysis Systems) meeting:

- M. Yang, T.-C. Chao, R. Nelson, A. Ros, *Protein identification and quantification for single cell analysis by coupling a microfluidic platform with MALDI-TOF*

Microscale Bioseparation (MSB) Conference:

- F. Camacho-Alanis, A. Nakano, A. Ros, *Protein Dielectrophoresis under AC and DC Conditions*

2012:SciX (formerly FACSS) conference:

- S. Bhattacharya, T.-C. Chao, A. Ros, *Selective Trapping of Single Human Breast Cancer Cells by Insulator Based Dielectrophoresis in a Microfluidic Device (awarded a poster prize)*
- M. Yang, T.-C. Chao, R. Nelson, A. Ros, *Protein affinity capture, digestion and MALDI-TOF detection from a microfluidic platform for single cell analysis*

16th μ TAS (Micro-Total-Analysis Systems) meeting:

- B. Abdallah, T.-C. Chao, P. Fromme, A. Ros, *Size Based Nanoparticle Separation using Dielectrophoretic Focusing for Femtosecond Nanocrystallography of Membrane Proteins*

AIChE meeting and AES annual meeting:

- F. Camacho-Alanis, A. Nakano, T.-C. Chao and A. Ros, *Frequency Dependence of Protein Dielectrophoresis Probed with Insulator Based Devices*

A. Nakano, F. Camacho-Alanis, T.-C. Chao and A. Ros, *AC and DC Protein Streaming and Trapping with Insulator-Based Dielectrophoretic Devices*

Physics, Chemistry, and Biology of Membrane Proteins Workshop, Arizona State University:

B. Abdallah, C. Kupitz, P. Fromme, A. Ros, *Salting-out Crystallization of Photosystem I in a Microfluidic Device*

2011:

15th μ TAS (Micro-Total-Analysis Systems) meeting:

A. Nakano, F. Camacho-Alanis, T.-C. Chao, A. Ros, *Systematic Investigation of Insulator-Based Protein Dielectrophoresis Under DC Condition*

Nanotech Conference, Montreux, Switzerland:

A. Nakano, F. Camacho-Alanis, T.-C. Chao, A. Ros, *Micro- and Nanoenvironments for Dielectrophoretic Manipulation of Proteins*

9th Annual Student Research Conference (organized by More Graduate Education at Mountain States Alliance)

B. Abdallah, A. Nakano, A. Ros, *A Hydrophobic Valve to Control Protein Crystallization in a Microfluidic Device, (awarded a poster price)*

2010:

FACSS (Federation of Analytical Chemistry and Spectroscopy):

A. Nakano, S. Bhattacharya, T.-C. Chao, A. Ros, *Trapping of proteins by insulator-based dielectrophoresis*

S. Bhattacharya, T.-C. Chao, A. Ros, *Dielectrophoretic Single Cell Trapping in a Microfluidic Lab-on-Chip Device (awarded a poster price)*

2008:

MSB (Microscale Bioseparations) Conference:

D. Greif, A. Ros, D. Anselmetti, *Single Cell Analysis In Whole Body Quartz Glass Chips With Native UV Laser Induced Fluorescence Detection*

DPG - Tagung (German Physical Society Meeting):

D. Greif, A. Ros, and D. Anselmetti, *Native UV laser induced fluorescence detection for single cell analysis in a hybrid PDMS-Quartz microfluidic chip*

J. Regtmeier, R. Eichhorn, A. Ros, and D. Anselmetti, *Conformational DNA separation by dielectrophoresis*

Nanotech, Montreux, Switzerland:

M. Everwand, J. Regtmeier, A. Ros, D. Anselmetti, *Surface Coatings in Poly(dimethylsiloxane) and Quartz Microfluidic Systems to Control Electroosmotic Flow and Protein Adsorption*

12th μ TAS (Micro-Total-Analysis Systems) meeting:

J. Regtmeier, R. Eichhorn, P. Reimann, A. Ros and D. Anselmetti, *DNA Diffusion Control*

B. Oral Presentations (students):

2016:

SciX (formerly FACSS) conference (10/2016):

- P. V. Jones, G. L. Salmon, A. Ros, *Dielectrophoretic Response of Condensed DNA Clusters in AC fields*

2015:

SciX (formerly FACSS) conference (09/2015):

- B.G. Abdallah, N. Zatsepin, S. Roy-Chowdhury, J. Coe, K. Dorner, R. Sierra, H. Stevenson, G. Calero, P. Fromme, A. Ros, *XFEL diffraction from protein nanocrystals isolated using a microfluidic sorter*

- A. Echelmeier, G. Nelson, B. Abdallah, U. Weierstall, J. C. H. Spence, P. Fromme, A. Ros, *Sample Delivery of Biphasic Droplets Containing Protein Crystals For Serial Femtosecond Crystallography With An X-Ray Free Electron Laser*

SALSA Summer School, Humboldt University Berlin (09/2015):

- B.G. Abdallah, *Cryo-scanning transmission electron tomography of vitrified cells*, invited summer school contribution
- A. Echelmeier, *SERS for Bioanalytical Applications*, invited summer school contribution

2014:AIChE (11/2014):

J. Luo, A. Ros, *Exploiting Absolute Negative Mobility with Dielectrophoresis for Mitochondrial Sample Preparation (Awarded an AES Travel Grant)*

SciX (formerly FACSS) conference (10/2014):

B. Abdallah, A. Ros, *High Throughput Nanoparticle Fractionation Using Insulator-Based Dielectrophoresis*

HPLC (05/2014)

J. Luo, B. G. Abdallah, G. G. Wolken, E. A. Arriaga, A. Ros, *Insulator-based Dielectrophoresis Applied to Mitochondria Sorting (Awarded a CASSS Travel Grant)*

Biophest (04/2014):

B. Abdallah, A. Ros, *Improving Protein Crystallography with Microfluidic Devices*

J. Luo, B. G. Abdallah, G. G. Wolken, E. A. Arriaga, A. Ros, *Insulator-based Dielectrophoresis Study for the Separation of Mitochondria by Absolute Negative Mobility*

SWAP (01/2014):

F. Camacho-Alanis, A. Ros, *Dielectrophoresis of proteins: challenges and recent advances* (Talk).

B. Abdallah, A. Ros, *Improving Protein Crystallography with Microfluidic Devices*

2013:Biophest 2013, Arizona State University, Tempe, AZ

F. Camacho Alanis, L. Gan, A. Ros, *Combining Focused Ion Beam Milling and Optical Lithography to Fabricate Microfluidic Devices for DNA and Protein Dielectrophoresis*

A. Nakano, F. Camacho Alanis, T.-C. Chao, A. Ros, *Streaming Dielectrophoresis of Proteins in a Microfluidic Platform*

SciX (formerly FACSS) conference:

F. Camacho Alanis, A. Nakano, A. Ros, *Protein Dielectrophoresis: A Promising Purification Method*

J. Luo, B.G. Abdallah, G. Woken, E. Arriaga, A. Ros, *Manipulation of Mitochondria by Insulator-based Dielectrophoresis*

2012:ITP conference:

A. Nakano, F. Camacho-Alanis, T.-C. Chao, A. Ros *Dielectrophoretic Protein Manipulation in a Microfluidic Device (awarded a CASSS travel grant)*

L. Gan, B. Ding, H. Yan, A. Ros, *Experimental and Theoretical Study of DNA Origami Dielectrophoresis in a Microfluidic System*

AIChE meeting and AES annual meeting:

F. Camacho-Alanis, L. Gan, A. Ros, *Combining Focused Ion Beam Milling and Optical Lithography to Fabricate Microfluidic Devices for DNA Dielectrophoresis*

R. Martinez-Duarte, F. Camacho-Alanis, A. Elkholy, P. Renaud, A. Ros, *Lambda-DNA Dielectrophoresis in a 3D Carbon-Electrode Micro-Post Device: Theoretical and Experimental Studies*

SciX (formerly FACSS) conference:

B. Abdallah, T.-C. Chao, P. Fromme, A. Ros, *A Dielectrophoretic Sorter for Nanoparticle and Nanocrystal Separation*

B. Abdallah, C. Kupitz, P. Fromme, A. Ros, *Microfluidic Tools Coupled to Numerical Simulations to Study Membrane Protein Crystallization*

M. Yang, T.-C. Chao, R. Nelson, A. Ros, *Hyphenation of a Microfluidic Platform with MALDI-TOF Mass Spectrometry for Single Cell Analysis*

Southwestern Analytical Chemistry Professor Meeting 2012, Tuscon, AZ:

B. Abdallah, A. Ros, *Membrane protein crystallization on microfluidic platforms for femtosecond nanocrystallography*

F. Camacho Alanis, A. Ros, *Insulator-Based Dielectrophoresis Applied to Bovine Serum Albumin and lambda DNA Concentration*

Biophest 2012, Arizona State University, Tempe, AZ

F. Camacho Alanis, L. Gan, A. Ros, *Combining Focused Ion Beam Milling and Optical Lithography to Fabricate Microfluidic Devices for DNA and Protein Dielectrophoresis*

A. Nakano, F. Camacho Alanis, T.-C. Chao, A. Ros, *Streaming Dielectrophoresis of Proteins in a Microfluidic Platform*

2011:

AIChE, American Electrophoresis Society meeting 2011:

L. Gan, B. Ding, H. Yan, A. Ros, *Dielectrophoretic (iDEP) Manipulation of DNA Origami in a Microfluidic System*

R. Martinez-Duarte, Philippe Renaud, A. Ros, *Concentration of DNA Using 3D Carbon-Electrode Dielectrophoresis*

A. Gencoglu, F. Camacho-Alanis, V.T. Nguyen, A. Nakano, A. Ros and A. Minerick, *pH Gradient Formation In An Insulator-Based Dielectrophoresis Device Used In Protein Trapping Applications*

FACSS (Federation of Analytical Chemistry and Spectroscopy Society):

A. Nakano, F. Camacho-Alanis, T.-C. Chao, A. Ros, *Manipulation of Proteins via Insulator-Based Dielectrophoresis in a Microfluidic Device*

Service

Professional Service

Board Memberships:

- Board Member, American Electrophoresis Society (fall 2010-present)
- ACS – Analytical Division Long Range Planning Committee Member (fall 2015-present)
- Member of the Scientific Committee of Nanotech Conference (2007-2016)
- Chairperson of the Equal Opportunity Board, Physics Department, Bielefeld University, Germany (2002-2007)

Referee Activities (Journals):

Nature Nanotechnology, Langmuir, Europhysics Letters, Macromolecules, Electrophoresis, Sensors and Actuators B, Lab on a Chip, IET Nanobiotechnology, Journal of Microfluidics and Nanofluidics, Analytical and Bioanalytical Chemistry, Journal of Nanotechnology, American Institute of Chemical Engineers Journal, Trends in Food Science and Technology, PloS ONE, Analytical Chemistry, Biomicrofluidics, NANO

Referee Activities (Funding Agencies):

National Science Foundation (USA): ad hoc CHE, CBET panel (12.2011), CMI panel (4.2012)

National Institute of Health (USA): Enabling Bioanalytical and Imaging Technologies (EBIT) panel (02.2014 & 02.2015)

Other Agencies/Organizations: Natural Sciences and Engineering Research Council (Canada), Research Council for Natural Sciences and Engineering (Finland), Alzheimer's Association, Federal Ministry of Education and Research (Germany), German Research Foundation

Journal Guest Editor:

- Analytical and Bioanalytical Chemistry (ABC): Special Issue on *Microfluidics in cell analysis*, Vol. 390, 2008
- Biomicrofluidics: Special Issue on *SciX 2013 Proceedings* (publication date 2014)

Journal Editor:

Academic Editor for PLOS One (2013-2015)

External PhD Referee:

- University of Potsdam, Germany (December 2009)
- University of Edmonton, Alberta, Canada (October 2008)

Conference Organization

- 2016 SciX Conference Technical Program Chair (Program Chair for conference of ~1200 attendees)
- 2016 Pittcon Session Organizer
- 2015 SciX Conference Award Chair
- 2015 FACSS Innovation Award Chair at SciX 2015
- 2015 FACSS and SciX Student Award Chair
- 2014 AES Program Organizer at SciX (formerly FACSS) conference (elected by AES members, 2013)
- 2014 Innovation Award Committee Member at SciX conference
- 2014 Society of Western Analytical Professors (SWAP) 46th Annual Meeting Organizer (held at Arizona State University)
- 2013 AES-SciX (formerly FACSS) Meeting Organizer (elected by AES members, 2012)
- Session Organization: *Advances in Electrokinetics and Electrophoresis: Bioanalytical, Biosensing, and Biomedical Applications* at the 2012 AES Meeting (in conjunction with AIChE meeting)
- Event Organizer of 'Lunch with Leaders' at the 2012 AES Meeting (held with AIChE meeting)
- Symposium Organization on *Electrophoresis with Focus on Dielectrophoresis* at SciX 2012 (formerly FACSS)
- Session Organization: *DNA Analysis in Microfluidic and Nanofluidic Devices* at the 2011 American Electrophoresis Society (AES) Meeting
- Symposium Organization on *Dielectrophoresis and Related Techniques* at FACSS 2010
- Scientific Committee Member: Nanotech Conference Montreux (since 2007)

Conference Poster Award Committee

- Poster judging committee chair at SciX 2015
- Poster judge at the Micro- and Nanoengineering conference 2002, Lugano, Switzerland
- Poster judge at the μ TAS conference, 2007, Paris, France
- Poster judge at the Nanotech conference 2010, Montreux Switzerland
- Poster judge at the Nanotech conference 2011, Montreux Switzerland
- Poster judge at the Microscale Bioseparations conference 2012, Geneva, Switzerland
- Poster judge at the SciX conference 2014, Reno, Nevada

Department Service at ASU

- Department Committee on Assessment and Accreditation (since fall 2016)
- Department Instrument Facilities Committee Chair (since fall 2014)
- Undergraduate Curriculum Program Committee (since fall 2010)
- CASD Faculty Search Committee (fall 2014)
- Honors College Programs Liaisons – Advisor (since fall 2014)
- BioXFEL/STC Faculty Search Committee (fall 2013-2014)
- Analytical Chemistry Search (fall 2012)
- Department Chair Search Committee (spring 2012)
- Department Seminar Committee (fall 2008-summer 2011)
- Medicinal Chemistry Search (2009-10)
- Department Instrument Facilities Committee (fall 2010-summer 2014)
- Department Strategic Planning Committee (since fall 2011)
- Student Committees see *Mentoring Activities*

Outreach

- REACH Mentoring Program for Female Chemists (spring 2013-present)
- 2014 & 2015 Organizer of 'Mixing Mystery' Science Village (BioXFEL outreach activities)
- Science Fair Co-Organizer at BASIS Ahwatukee School (2014-16)

Commercial Products from Patents

06/2006: OFFGEL Fractionator launched by Agilent Technologies

Memberships

German Chemical Society (GDCh) (2001-2012)
 American Chemical Society (ACS) (2009-present)
 The Electrophoresis Society (AES) (2010-present)

Collaborators (current)

Dr. Edgar Arriaga, Department of Chemistry, University of Minnesota & Department of Biochemistry, Molecular Biology and Biophysics, University of Minnesota
 Dr. Rodrigo Martinez Duarte, Clemson University
 Dr. Dobin Nedelkov, Biodesign Institute, Arizona State University
 Dr. Petra Fromme, Department of Chemistry and Biochemistry & CASD, The Biodesign Institute, Arizona State University
 Dr. John Spence, Department of Physics, Arizona State University
 Dr. Uwe Weierstall, Department of Physics, Arizona State University
 Dr. Henry Chapman, Center for Free-Electron Laser Science, DESY & University of Hamburg, Germany
 Dr. Richard Kirian, Department of Physics, Arizona State University
 Dr. Nadia Zatsepin, Department of Physics, Arizona State University

Teaching

Courses Taught at ASU

Course	Course #	Semester
Bioanalytical Microfluidics	CHM 598 NAN 598	Fall 2016
Research	CHM 792	Fall 2016
Research	CHM 792	Spring 2016
Dissertation	CHM 799	Spring 2016
Dissertation	CHM 799	Fall 2015
Research	CHM 792	Fall 2015
Dissertation	CHM 799 BCH 799	Spring 2015
Research	CHM 792	Spring 2015
Bioanalytical Microfluidics	CHM 598 NAN 598	Spring 2015
Advanced Analytical Chemistry Lab	CHM326	Fall 2014
Instrumental Analysis Laboratory	CHM 328	Spring 2014
Bioanalytical Microfluidics	CHM 598 NAN 598	Fall 2013
Research	CHM 792 BCH 792	Fall 2013
Honors Thesis	CHM 493	Spring 2013
Research	BCH 792 CHM792	Spring 2013
Analytical Chemistry	CHM 325	Fall 2012

Introduction to Research Techniques	CHM 392	Spring 2012
Instrumental Analysis Laboratory	CHM 328	Spring 2012
Analytical Chemistry Seminar	CHM 501	Spring 2012
Bioanalytical Microfluidics	CHM 598 NAN 598	Fall 2011
Research	CHM 592 CHM 792	Fall 2011
Honors Thesis	CHM 493	Spring 2011
Research	CHM 592 CHM 792	Spring 2011
Instrumental Analysis Laboratory	CHM 328	Spring 2011
Bioanalytical Microfluidics	CHM 598 NAN 598	Fall 2010
Honors Directed Study	CHM 492	Fall 2010
Research	CHM 592	Fall 2010
Introduction to Research Techniques	CHM 392	Fall 2010
Instrumental Analysis Laboratory	CHM 328	Spring 2010
Research	CHM 592	Fall 2009
Bioanalytical Microfluidics	CHM 598	Fall 2009
Research	CHM 592	Spring 2009
Bioanalytical Microfluidics	CHM 598	Spring 2009
Analytical Chemistry	CHM 325	Fall 2008

Other courses taught:**(*at Bielefeld University)**

*Biophysics I SS 06 (4 h/week/semester & exercises, team-teaching)

*Biophysics II WS 06/07 (4 h/week/semester & exercises, team-teaching)

*Microfluidics WS 05/06 (3 h/week/semester & exercises, team-teaching)

*per pro: Biophysics I and II, SS 04 – WS 05/06

*Microfluidic lab for students: WS 05/06 to WS 06/07 (1 week)

Basics of Analytical Chemistry for Non-Chemists, École Polytechnique Fédéral de Lausanne, Switzerland (contribution, 4 weeks WS 98)

*Seminar: Modern Methods of Biophysics WS 01/02-SS 07 (2 h/week/semester, team-teaching)

*Seminar: Selected Literature of Modern Methods in Biophysics WS 01/02 – SS 06 (2 h/week/semester)

Mentoring Activities**Description of my role as a mentor:**

* indicates Ros as student mentor at ASU

† indicates Ros as main research supervisor at Bielefeld University

Post Doctoral Fellows (PD) and Research Professors (RP):

* PD Tzu-Chiao Chao, *now Research Associate and Adjunct Faculty, University of Regina, Canada*

* PD Fernanda Camacho Alanis (mentored 2011-01.2016) *now at Intel Chandler, AZ*

* PD Paul Jones (mentored 05.2015 to 12.2016)

* PD Jinghui Luo (mentored in 2016, 5 months), *now WuXi AppTec*

* PD Bahige Abdallah (mentored in 2016, 3 months), *now post doc at NIH*

* RP Ana Egatz Gomez (mentored since 08.2016)

PhD Advisor:

*Seunghyun Lee ([current](#), dissertation committee Co-chair & research advisor: A. Ros)

*Towshif Rabbani ([current](#), dissertation committee chair & research advisor: A. Ros)

*Daihyun Kim ([current](#), dissertation committee chair & research advisor: A. Ros)

*Austin Echelmeier ([current](#), dissertation committee chair & research advisor: A. Ros)

- *Bahige Abdallah ([graduated](#), Spring 2016, *Microfluidic Tools for Protein Crystallography*)
- *Mian Yang ([graduated](#), Spring 2016, *Hyphenation of a Microfluidic Platform with MALDI-TOF Mass Spectrometry*)
- *Jinghui Luo ([graduated](#), Fall 2015, *Migration for Organelles and Bacteria in Insulator-Based Microfluidic Devices*)
- *Lin Gan ([graduated](#), Summer 2015, *Insulator-Based Dielectrophoretic Manipulation of DNA in a Microfluidic Device*)
- *Asuka Nakano ([graduated](#), Spring 2014, *Protein Dielectrophoresis using Insulator-Based Microfluidic Platforms*)
- *Sanchari Bhattacharya ([graduated](#), Fall 2013, *Insulator Based Dielectrophoretic Trapping of Single Mammalian Cells*)
- †Thanh Tu Duong ([graduated](#), *Neue Migrations- und Separationsmechanismen in strukturierten Mikrofluidiksystemen*)
- †Wibke Hellmich ([graduated](#), *Einzelzellanalytik in Mikrofluidik-Systemen*)
- †Jan Regtmeier ([graduated](#), *Non-equilibrium migration mechanisms for microfluidic bioanalysis*)
- Dominik Greif ([graduated](#), *Einzelzellanalytik in Mikrofluidik-Systemen mit nativer UV-LIF Detektion*)

Doctoral Dissertation Committee Member:

- Thorsten Bogner (*Density matrix renormalization applied to nonlinear dynamical systems*), Bielefeld University, Germany
- Govind Kaigala (*Genetic Analysis Using Lab-on-a-Chip Technologies*), served as external reviewer
- Michael Kirschbaum (*A microfluidic approach for the initiation and investigation of surface-mediated signal transduction processes on a single-cell level*), Potsdam, Germany, served as external reviewer
- * Kyle Foley, Electrical Engineering, ASU ([graduated](#) 2010)
 - * Noah Weiss * Paul Oran * Stacy Kenyon, * Paul Jones, * Michael Keebaugh, * Kim Rendek, * Gong Zhen, * Lee Ho-Hsien, * Dongran Han, * Robin Paul, * Kumar Ashok, * Christopher Kuptiz, * Jie Ding, *Kumar Ashok, * Hu Yueming, *Claire Crowther, * Shatabdi Roy-Chowdhury, * Chelsea Conrad, * Yu Zhou, * Fanyi Zhu, * Ryan Yanashima, * Ashley Hunt, *Guangzhong Ma, *Manas Mondal, *Yu Zhou

Master Thesis Chair

- * Matthew Sawtelle (current, PSM NAN, *Optimization of microfluidic particle sorting based on dielectrophoresis*)
- * Shikha Manchanda ([graduated](#), *Electroosmotic Flow and Biofouling Control in PDMS Microfluidic Channels*)

Master Thesis Committee / Research Supervision

- *Gerrit Brehm, [exchange student](#), Göttingen University, Germany (*3D printing of mixers and injectors for nanocrystallography*)
- * Samita Rai (Structural Characterization of Potential Cancer Biomarker Proteins)
- * Melanie Dannemayer, [exchange student](#), Bielefeld University (*pH dependence in PDMS microfluidic systems*)
- * Shikha Manchanda (*Electroosmotic Flow and Biofouling Control in PDMS Microfluidic Channels*)
- * Michael Schroeder, Mechanical Engineering, ASU
- Reiner Eckel (*Messung und Simulation der mechanischen Elastizität einzelner DNA-Ligand-Komplexe*)
- † Wibke Hellmich (*Kapillarelektrophorese in PDMS Mikrofluidik-Kanälen*)
- † Thanh Tu Duong (*DNA-Migration in strukturierten Mikrofluidik-Kanälen*)
- † Jan Regtmeier (*Alternativer Migrationsmechanismus in Mikrofluidiksystemen: Absolut negative Mobilität*)
- Kai Leffhalm (*Einzelzellanalyse in Mikrofluidik-Netzwerken mittels optischer Pinzette*)
- † Stefan Gerkens (*Chip-Integrierte Peristaltikpumpe in PDMS Mikrofluidiksystemen*)
- † Henning Höfemann (*Separation von DNA mittels Dielektrophorese in Mikrofluidiksystemen*)

Comprehensive Exam Committee (including chairs)

- *Michael Keebaugh, *Stacey Kenyon, *Noah Weiss (Chair), *Ryan Nangreave (Chair), *Paul Jones, *Amlendu Prabhakar, *Xixi Wei, *Suchetan Pal, *Kimberley Rendek, *Qiyuan Wei, *Padmini Krishnakumar, *Kyle Foley, *Deepthi Jampala (MS), Pal Suchetan, *Kumar Ashok, *Kuriata Agnieszka *Medpelli Dinesh (Chair), *JayHow Yang, *Ho-Hsien Lee, *Robin Paul, *Patrick Kwan, *Paul Oran, *Zhen Gong, *Dongran Han, *Rai Samita, *Ding Jie, *Christopher Kupitz, *Timothy Lamp, *Medpelli Dinesh (Chair), *Shayesteh Roshdi-Ferdosi (Chair), *Christine Woolley, *Ryan Yanashima, *Jitao Zhang, *Fei Zhang, *Shatabdi Roy-Chowdhury, * Claire Crowther, *Shannon Huey, *Chelsea Conrad, *Fanyi Zhu, *Ma Guangzhong, *Yu Zhou, *Manas Mondal, *Hu Yueming, *Christopher Nazaroff

Physics (written comprehensive): *Nethmi Ariyasinghe, *De-Xin Kong, *Padmini Krishnakumar,

Temporary Mentoring (PhD students):

*Shen Liu, *Amlendu Prabhakar, *Wei Wang, *Asuka Nakano, *Zheng Gong

Undergraduate Research Supervision:

* Gabe Salmon (*DNA sorting with iDEP in a microfluidic device*)

* Kamran Bodushev (*DNA fractionation in an iDEP sorter*)

* Mathew Sawtelle (*Performance Optimization of a Microfluidic Sorter for Nanocrystals*)

* Colin Mothershead (*Numerical Simulations of Dielectrophoresis Using Conductive Atomic Force Microscopy in a Fluid Medium*)

* Kathleen Bush (*Temperature measurement with a dual fluorescence dye system in microfluidic devices*)

* Alexander Elkholy (*Design optimization of iDEP devices*)

* Tim Hafkey (*Single cell patterning using mosaic microfluidics*)

* Bahige Abdallah (*Microfluidic valves for microfluidic protein counter diffusion*)

* Shikha Manchanda (*Biofouling of PDMS surfaces*)

* John Griffin (*Electroosmotic flow in PDMS microfluidic systems*)

* Kantesh Malvia (*Electric field simulations with COMSOL*), Internship student from IIT India

Carsten Oberpenning (*Migration von μ -Beads in Mikrofluidik-Systemen*)

† Martina Everwand (*Statische und Dynamische Oberflächenbeschichtungen in Poly(dimethylsiloxan) und Quarz Mikrofluidiksystemen*)

† Lukas Bogunovic (*Einflüsse der Ionenkonzentration und von Fluorophoren auf die Polarisierbarkeit von linearer DNA in Mikrofluidiksystemen*)

Tobias Rosenstock (*Abbildung von Plasmiden mittels Rasterkraftmikroskopie*)

Honors Thesis Supervision

* Vi Nguyen (*Electroosmotic flow measurements and protein adsorption studies in microfluidic devices*), graduated Spring 2011

* Kathleen Bush (*Temperature measurement with a dual fluorescence dye system in microfluidic devices*), graduated Fall 2013

Honors Project Supervision

*Tyler Porter, *Aaron Feller, *Kyle LaCasse

Summer Internship Students

*Tina Ansari, *Kathleen Bush, *Genevieve Hall, *Justin Hillsten, *Michael Norton, *Jan Klos, *Jorvani Cruz

Tempe, 1/31/2017

