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Professor of Chemistry

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1. Education

- Ph.D., Chemistry, University of Southern California, Los Angeles, California, 1990.
- B.Sc. Chemistry and Physics, Excellence, Qatar University, Doha, Qatar, 1985.

2. Teaching, Mentoring and Scholarship:

I have more than 27 years of *teaching, mentoring, and advising* students at several institutions, both at the graduate and undergraduate levels.

- I have taught general, organic, polymer chemistry classes in addition to materials science and characterization, independent studies, independent research, special topics, waste management and environmental chemistry courses. I developed new general education classes in addition to teaching and working closely with the First Year Seminar classes.
- Supervised more than 80 research students' projects (many of whom were engineering majors) in areas including: polymorphism and co-crystallization of pharmaceuticals; organic materials for optical, biological and electronics applications; solid-state chemistry, molecular crystals and computational chemistry.
- One of my main interests has been in *pedagogical research* primarily developing new educational materials especially for laboratory courses by designing new research-based experiments for undergraduate teaching laboratories.
- One of my most rewarding and satisfying experiences throughout my career has been coaching, mentoring, and advising students especially in their first two years in college. Many students do not really know what to do or major in, and as such, we could risk losing the chance to help them in attaining their full potential or at least lose the charge that drives them to succeed. Proper concerted intervention at the department, college and university levels can make a huge impact on how they turn out. Close one on one coaching and mentoring is critical, and it works. I can share

numerous examples of past students who were initially struggling and then went on to have mazing careers.

3. Professional Experience

- 2013- Present* Professor of Chemistry and Vice Provost for Academic Affairs, (May 2013-Oct. 2014), Professor of Chemistry (Oct. 2014-present), Alfaisal University, Riyadh, Saudi Arabia
- 1997-2014 Discipline Coordinator, Division of Science, University College, Penn State (equivalent to Dean of Science at all branch campuses of the Penn State University); 2012-2-13; Professor of Chemistry, 2012-2013; Associate Professor of Chemistry, 2003-2012; Assistant Professor of Chemistry, 1997-2003; Pennsylvania State University, Hazleton, Pennsylvania
- 1993-1997 Assistant Professor of Chemistry, United Arab Emirates University, Al-Ain, United Arab Emirates.
- 1992-1993 Post-Doctoral Research Associate, Department of Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, Minnesota. Advisor: Professor Michael D. Ward. Worked on crystal growth of amino acids onto modified surfaces.
- 1990-1992 Visiting Researcher, HIVIPS Program; Hitachi Research Laboratory, Department of Organic Materials: Nonlinear Optics and Liquid Crystals Group, Hitachi City, Ibaraki Prefecture, Japan. Supervisor: Dr. A. Kakuta

4. Awards

- 2012 Penn State Faculty Research award
- 2003 Penn State, Student Service Award
- 2015 Alfaisal University, Outstanding Teaching Faculty award

5. Professional Associations

- Member of the American Chemical Society (ACS), 1986-present.
- Member of the Materials Research Society, 1989-present.

6. Current Research Interests

1. Crystal growth of organic functional materials for electronics and photonics applications
2. Synthetic chemistry for molecular nano wires and organic semiconductors. Design of new Electron Acceptors for Solar Cells Applications
4. Design of New n-Type and Crystalline Ambipolar Organic Semiconductors
5. New polymorphs of pharmaceuticals with solubility and thermal stability problems
6. Computational Materials Chemistry
7. Pedagogical research to integrate research and teaching by development of new materials chemistry experiments for the undergraduate curriculum
8. Books: Editing a textbook on “organic materials chemistry”
9. Biomass and sustainability exploratory basic research

7. Service Activities

A. departmental, college and institution wide service:

I served on and chaired many committees at Penn state Hazleton and at Alfaisal: *promotion, lectures, research, teaching and learning, curriculum affairs and development, student's affairs and institutional advancement.*

- Member of the University Promotion committee at AU and PSU
- Chair of the university-level strategic planning committee at AU and PSU
- Chair of the college of science strategic planning committee at AU
- Chair of the safety committee at PSU and Alfaisal
- Chair of the council of Administrators (when serving as interim VP for admin and finance)
- Founder and Advisor for the Eco and Science Clubs at AU, founding advisor of science and engineering club at PSU.
- Chair of the academic development (curricular affairs) committee at AU, member at PSU
- Developed booklet on teaching and learning for new faculty members.

- Developed booklet on teaching and learning best practices in science labs.
- Gave several workshops on teaching, learning, and brown bag discussions on a variety of teaching and learning topics. Developed teaching guidelines for lab instruction in all chemistry labs at Alfaisal.

B. *Professional Service*

- Served on King Faisal Prize Science Selection Committee
- Served on the G-20 scientific committee, circularity in materials.
- Served on a panel for the CAREER (presidential Awards) in the Division of Materials Research, National Science Foundation, and member of organizing committee for the Biennial National Conference on Chemical Education.
- Member of the organizing committee of the second Qatar Symposium for Science teaching and learning, while on sabbatical leave, spring 2007.
- Reviewer of Proposals for the National Science Foundation (NSF)
- Served as a reviewer for the following Journals: *Journal of the American Chemical Society; Chemistry of Materials; Macromolecules; Journal of Physical Chemistry. Advanced Functional Materials, Royal Society of Chemistry, and others*
- Served as a technical reviewer and judge for local and regional scientific competitions for colleges and k-12 students (PA Junior academy of sciences)
- Coached teams of teacher high school research experiences for inner city schools while at MRSEC in the University of Minnesota (summer programs 2001-2010), developing new experiences for teachers to bring back to their classrooms.

C. *Community Service*

- Board of Directors, Diversity Institute at Misericordia University. Member 2005-2013. I have given talks and/or participated in discussions or panels at several institutions throughout Northeastern Pennsylvania including: PSU Scranton, PSU Wilkes-Barre, Wilkes University, Kings College, Misericordia University, PSU Hazleton and Wyoming Valley Geisinger Hospital.
- Luzerne County Diversity Commission. Member, 2007-2013. I have given talks, participated in workshops, functions, lectures, panels and

participated in monthly meetings and functions related to diversity issues in Luzerne County.

- Girl Scouts. I have hosted science programs for girls' scouts 2nd to 10th grade young girls from central and eastern Pennsylvania at PSU/HN to encourage more women in science and engineering.
- Judge and mentor, Pennsylvania Junior academy of sciences, 1997-2012

8. Publications

1. "Alpha-Halogenated Curcumin", Pham, P.; Bader, Mamoun, *under review ACS Omega*, April. 2024.
2. Mamoun M. Bader and P. T. Pham, IUCr Data, 2024, in press, accepted April 15, **2024**, Benzo[a]benzo[5,6][1,4]thiazino[3,2-c]phenothiazine, accepted April 12, **2024**
3. M.M. Bader, C. Fiester, P.-T.T. Pham, A. Bradely and A. Nazzal (2024). IUCrData 9, <https://doi.org/10.1107/S2414314624002992>. accepted April 7, **2024**
4. Di- and Tricyanovinyl-Substituted Triphenylamines: Structural and Computational Studies, P. Pham and Mamoun M. Bader, *ACS Omega*, published online Feb. 29, **2024**, <https://doi.org/10.1021/acsomega.3c05312>
5. Thiophenes Endowed with Electron-Accepting Groups: A Structural Study, P. Pham and Mamoun M. Bader, *Cryst. Growth Des.* **2024**, *24*, 906–912.
6. Crystal structure of 1-[4-[bis(4-methylphenyl)amino]phenyl]ethene-1,2,2-tricarbonitrile Mamoun M. Bader and P. Pham, *Acta Cryst.* (**2024**). *E80*, 339–342.
7. Design of Novel Functional Materials Using Reactions of Quinones with Aromatic Amines, P. Pham and Mamoun M. Bader, accepted for publication, Feb. **2024** (in press). DOI: <http://dx.doi.org/10.5772/intechopen.114301>
8. Fiester, C., Pham, P.T.T., Bradley, A. et al. Synthesis and characterization of a novel asymmetric fused ladder oligomer for applications as organic semiconductor. *MRS Advances* *8*, 889–893 (**2023**). <https://doi.org/10.1557/s43580-023-00609-y>
9. P. Pham, Mamoun M Bader, NC-Ph-T-Ph-CN; CCDC 2270158: Experimental Crystal Structure Determination, **2023**, DOI: 10.5517/ccdc.csd.cc2g68xw
10. P. Pham, Mamoun Bader, (DCV)2-2T; CCDC 2289032: Experimental Crystal Structure Determination, **2023**, DOI: 10.5517/ccdc.csd.cc2gtxrz
11. P.Pham, Mamoun M Bader, 5,5'-dinitro-2,2'-bithiophene, CCDC 2270317: Experimental Crystal Structure Determination, **2023**, DOI: 10.5517/ccdc.csd.cc2g6g16

12. P.Pham, Mamoun M Bader, [35-(4-methylphenyl)[12,22:25,32-terthiophen]-15-yl]ethene-1,1,2-tricarbonitrile, CCDC 2270159: Experimental Crystal Structure Determination, **2023**, DOI: 10.5517/ccdc.csd.cc2g68yx
13. P. Pham, Mamoun Bader, 4-bromo-N,N-diphenylaniline, CCDC 2202336: Experimental Crystal Structure Determination, **2022**, DOI: 10.5517/ccdc.csd.cc2cxq34
14. P.Pham, Mamoun M Bader, CCDC 2208325: Experimental Crystal Structure Determination, **2022**, DOI: 10.5517/ccdc.csd.cc2d3y9s
15. Mamoun Bader, P. Pham, CCDC 2208326: Experimental Crystal Structure Determination, **2022**, DOI: 10.5517/ccdc.csd.cc2d3ybt
16. P.Pham, Mamoun M Bader, [(thieno[3,2-b]thiophen-2-yl)methylidene]propanedinitrile, CCDC 2208322: Experimental Crystal Structure Determination, **2022**, DOI: 10.5517/ccdc.csd.cc2d3y6p
17. P.Pham, Mamoun M Bader, [[2,2'-bithiophen]-5-yl)methylidene]propanedinitrile, CCDC 2208323: Experimental Crystal Structure Determination, **2022**, DOI: 10.5517/ccdc.csd.cc2d3y7q
18. "Components of All-Solid-State Ion-Selective Electrodes (AS-ISEs)", Benoudjit A.M., Shohibuddin I.U.S., Bader M.M. **2020** In: Siddiquee S., Gan Jet Hong M., Mizanur Rahman M. (eds) *Composite Materials: Applications in Engineering, Biomedicine and Food Science*. Springer
19. "Fluorometric determination of okadaic acid using a truncated aptamer", Chinnappan, R., AlZabn, R., Mir, T.A.; Bader, Mamoun M. and Zoroub, M. *Microchim Acta*, **2019**, *186*, 406.
20. Nur Ismail, F. Abd-Wahab, Nurul Ramli, Mamoun M. Bader Electrochemical Methods to Characterize Nanomaterial-Based Transducers for the Development of Noninvasive Glucose Sensors, *Nanotechnology: Applications in Energy, Drug and Food*, 423-439, **2019**. Springer.
21. "Study of electropolymerized PEDOT: PSS transducers for application as electrochemical sensors in aqueous media", **2018**, *Sensing and Bio-Sensing Research*, 18-24.
22. "The Impact of Vinylene Bridges and Side Chain Alkyl Groups on Solid State Structures of Tricyanovinyl-Substituted Thiophenes", P-T T. Pham and Mamoun M. Bader, *Cryst.Eng. Comm.*, **2018**, 128-132.
23. A. Benoudjit, Mamoun M Bader, Wan A. Salim "Study of electropolymerized PEDOT: PSS transducers for application as electrochemical sensors in aqueous media", **2018**, *Sensing and Bio-Sensing Research*, 18-24.
24. Pham, P.-T. T., Bader, M. M., "Structural Studies on Some Oligothiophenes and Ethylenedioxythiophenes"; *MRS Online Proceedings* **2015**, 1799, 19-28.

25. Pham, P.-T. T., Bader, M. M., **2014** "Inter- and Intramolecular Interactions in Some Bromo- and Tricyanovinyl-Substituted Thiophenes and Ethylenedioxythiophenes" *Cryst. Growth & Design*. **14**, 916–922.
26. Salim, A., Bader, M. M. et.al "Micro-electro-chemical-sensor (MECS) Technology Based on All-solid-state Ion-selective Electrodes for Physiological Research." *Journal of Visualized Experiment*, **2013**, *74*, e50020
27. "Structures of Brominated Oligothiophenes and Ethylenedioxythiophenes: A Combined Experimental and Theoretical Study", Bader, Mamoun M.; Pham, Phuong-T. *Materials Research Society, Charge Generation/Transport in Organic Semiconductor Materials*, **2012**, Ed., J. Anthony. MRS Online Proceedings Library 1402.
28. "Dicyanovinyl-Substituted Oligothiophenes", Bader, Mamoun M.; Pham, Phuong-T.; Elandaloussi, El Hadj, *Crystal Growth & Design*, **2010**, *10* (12), pp 5027–5030.
29. "Microstructural Investigation of Gamma-Irradiated Ultra High Molecular Weight Polyethylene in Nitrogen Atmosphere", M. Al-Ma'adeed , N.J. Al-Thani , Mamoun M. Bader, *Avanced Materials Research*, **2010**, *83-86*, 505-523.
30. "(1E,3E,5E,7E)-4,40-(Octa-1,3,5,7-tetraene-1,8-diyl) dipyridine", Muhammad Nadeem Arshad, Mamoun M. Bader, Phuong-Truc T. Pham and K. Travis Holman, *Acta Cryst.* **2010**, E66, o508.
31. "Extended 7,7,8,8-Tetracyano-p-quinodimethane-Based Acceptors: How Molecular Shape and Packing Impact Electron Accepting Behavior", Mamoun M. Bader, Phuong-Truc T. Pham, Basant R. Nassar, Hui Lin, Yu Xia, C. Daniel Frisbie, *Crystal Growth & Design*, **2009**, *9*, 4599–4601.
32. "2,5-Bis(5-bromo-2-thienyl)thiophene" , Mamoun M. Bader, *Acta Cryst.* **2009**. E65, o2119.
33. "4-[(1E,3E,5E)-6-(4-Pyridyl)hexa-1,3,5- trienyl] pyridine", Mamoun M. Bader, *Acta Cryst.* **2009**. E65, o2006.
34. "Single Crystal Field Effect Transistor of a Y-Shaped Ladder-Type Oligomer", Pham, Phuong-T.; Yu, Xia; Frisbie, C. Daniel; Bader, Mamoun, *J. Phys. Chem.C*, **2008**, *112*, 7968-7971.
35. "Fused heterocyclic aromatics as potential organic semiconductors: a theoretical study", Al-Tal, Faleh; Pham, Phuong-T. T.; Al-Maadeed, Mariam Ali; Bader, Mamoun M. *Materials Research Society Symposium Proceedings*, **2008**, *1091E (Conjugated Organic Materials)*, 1091-AA07-69.
36. "Microstructural changes in gamma-irradiated ultra high molecular weight polyethylene" Al-Maadeed, Mariam; Al-Thani, Nora J.; Bader, Mamoun M. *Polymer Preprints*, **2008**, *49*(1), 856-857.

37. "N- and P-Channel Transport Behavior in Thin Film Transistors Based on Tricyanovinyl-Capped Oligothiophenes" Cai, Xiuyu; Burand, Michael W.; Newman, Christopher R.; da Silva Filho, Demetrio A.; Pappenfus, Ted M.; Bader, Mamoun M.; Bredas, Jean-Luc; Mann, Kent R.; Frisbie, C. Daniel. *J. Phys. Chem. B* **2006**, 110, 14590-14597.
38. "Hydrogen-Bonded Host Frameworks with Tunable Cavities: Structural Characterization and Inclusion-Based Separations of Molecular Isomers", Horner, Matthew J.; Grabowski, Sara; Sandstrom, Kevin; Holman, K. Travis; Bader, Mamoun; Ward, Michael D.; Kim, Woo-Sik. *Amer. Cryst. Assoc. Trans.*, **2004**, 39, 130-139.
39. "Tricyanovinyl-Substituted Oligothiophenes". Bader, Mamoun M.; Custelcean, Radu; Ward, Michael D., *Chem. Mat.* **2003**, 15, 616-618.
40. "Third-Order Optical Nonlinearities of a,w-Dithienylpolyenes and Oligo(thienylvinylene)" Sun, Wenfang; Bader, Mamoun M.; Carvalho, Taiala. *Optics Communications*, **2003**, 215, 185-190.
41. "AC electrical behavior of a novel aromatic electro-optic polyimide". Jawad, S. Abdul; Bader, M. *International Journal of Polymeric Materials*, **2002**, 51, 403-412.
42. "Design, synthesis and electrochemical behavior of some new organic electron acceptors," Bader, M. M.; Carvalho, T.; Moser, J. D.; Li, H.; Tartar, S.; Spangler, C. W. "Linear and Nonlinear Optics of Organic Materials," Editor(s): Eich, Manfred; Kuzyk, Mark G., *Proc. SPIE-The International Society for Optical Engineering*, **2002**, 4461, 304-310.
43. "Photostability of 1-Diphenylamino-4-tricyanoethenylbenzene/Poly (methyl methacrylate) Thin Films," Sisk W.N.; Bader M. M. *Polym. Mat. Sci. Eng.(PMSE)*, **2001**, 84, 1087-1088.
44. "Dielectric Relaxation Spectroscopic Measurements on a Novel Electroactive Polyimide", Jawad, S. A.; Alnajjar, A.; Bader, M. M. *Materials Research Society Proceedings, Electroactive Polymers*, **2000**, Eds., Q. M. Zhang, T. Furukawa, Y. Bar-Cohen, J. Scheinbeim, 600, 311-323.
45. "Theoretical Investigation of The Second and Third Order Nonlinear Optical Properties of Some Fused Heterocyclic Aromatic Compounds", Bader, M. M. *Materials Research Society Proceedings, The Optical Properties of Materials*, **2000**, Eds., J. R. Chelikowsky, S. G. Louie, G. Martinez, R. L. Shirley, 579, 163-167.
46. "Synthesis and Characterization of New Metal-Containing Polymers for Optical Applications", Bader, M. M.; Pham, P. T.; Eds. M. G. Kuzyk, M. Eich, *SPIE-The International Society for Optical Engineering*, **2000**, 3796, 178-18.
47. "Synthesis and Characterization of New Star-Shaped Metal-Containing Polymers for Optical Applications", Bader, M. M.; Pham, P. T.; Moser, J. D. *Materials Research Society Proceedings, The Optical Properties of Materials*, **2000**, Eds., S. P. Ermer, J. R. Reynolds, J. W. Perry, A. K-Y. Jen, Z. Bao, 598, BB11.56.1-11.56.5.

48. " Design and Synthesis of New Acceptor Molecules for Photo-Induced Electron Transfer Reverse Saturable Absorption", Bader, M. M.; Moser, J. D.; Li, H.; Tarter, S.; Spangler, C. *Materials Research Society Proceedings, The Optical Properties of Materials*, **2000**, Eds., S. P. Ermer, J. R. Reynolds, J. W. Perry, A. K-Y. Jen, Z. Bao, 598, BB4.8.1-4.8.7.
49. "Synthesis and Characterization of New Metal-Containing Polymers for Third-Order NLO Applications". Bader, M. M.; Pham, P. T.; Molli, A.; Myeres, K.; Moser, J. D. and Albright, L. *Materials Research Society Proceedings, Organic Nonlinear Optical materials and Devices*, **1999**, Eds., B. Kippelen, H.S. Lackritz, R. O. Claus, 561, 93-98.
50. "Nonlinear Optical Characterization of Organic Materials", in Optical Metrology: A Critical Review, Bader, M. M., Ed. G. Al-Jumaily, *SPIE-The International Society for Optical Engineering*, **1999**, CR72, 257-276.
51. "Theoretical Investigation of the Nonlinear Optical Polarizabilities of Some Fused Aromatic Compounds". Bader, M. M. *Proc. SPIE-The International Society for Optical Engineering*, **1998**, 3473, 112-123.
52. "Dielectric Relaxation Spectroscopic Measurements on Polypyrrole". Bader, M. M.; Abdel-Jawad, S. A. and Al-Najjar, A. *Inter. J. Polymeric Mater.*, **1998**, 39, 21-31.
53. "Synthesis and Characterization of Terminally Functionalized n-Alkane Thiols". Bader, M. M. *Phosphorous, Sulfur and Silicon*, **1996**, 116, 77-92.
54. "Nucleation and Growth of Molecular Crystals on Self-Assembled Monolayers", L.M. Frostman, L. M.; Bader, M. M.; Ward, M. D. *Langmuir*, **1994**, 10, 576-582.
55. "Theoretical Investigation of the Electronic and Geometric and Nonlinear Optical Properties of 8-Hydroxyquinoline Derivatives". Bader, M. M; Hamada, T. ; and Kakuta, A. *J. Amer. Chem. Soc.*, **1992**, 114, 6475-6479.
56. "Fused, Three-ring Donor-Acceptor Molecules as Potential Materials for Efficient Second Harmonic Generation". Mclean, M. R.; Bader, M. M.; Dalton, L. R. *Materials Research Society Proceedings, Electrical, Optical and Magnetic Properties of Organic Solid State Materials*, **1990**, eds., L.Y. Chiang; D. Cowan; and P. Chaikin, 173, 563-566.
57. "The Effect of Matrix Attachment on the Third-Order Nonlinear Optical Properties of Dyes". Polis, D. W.; Bader, M. M.; Dalton, L. R. *Materials Research Society Proceedings, Electrical, Optical and Magnetic Properties of Organic Solid State Materials*, **1990**, eds., L.Y. Chiang; D. Cowan; and P. Chaikin, 173, 551-556.
58. "New Polymers for Electroactive Applications". Polis, D. W.; Bader, M. M.; Dalton, L. R. *Materials Research Society Proceedings, Electrical, Optical, and Magnetic Properties of Organic Solid State Materials*, **1990**, eds., L.Y. Chiang ; D. Cowan ; and P. Chaikin, 173, 567-71.
59. "A Photophysical and Structural Study on Dye-Type Organic Molecules with Potentially Useful Nonlinear Optical Properties". Mclean, M.R.; Bader, M. M.; Dalton, L. R. ; Devine, R.S.; Steier, W.H. *J. Phys. Chem.*, **1990**, 94, 4386-87.

60. "Stabilization of Bipolaronic States in Ladder Polymer Model Systems : Implications for Polymers having Enhanced Nonlinear Optical Properties", Spangler, C. W.; Havelka, K.; Bader, M. M.; McLean, M.R.; Dalton, L. R. *Proc. SPIE-The International Society for Optical Engineering*, **1989**, 1147, 149.

9. Patents

"Nonlinear Optical Device Containing Organic Metal Complex". Mamoun Bader; Y. Itoh and A. Kakuta, Japanese Patents, Jpn.Kokai Tokkyo Koho JP 05,173,204; 1993, [Chem. Abstr. vol.119, 1993, P 213728f.]

"Organic Nonlinear Optical Material for Second Harmonic-Generating Waveguide Device". Mamoun M. Bader; T. Hamada H. Kagawa and A. Kakuta, Japanese Patents, Jpn.Kokai Tokkyo Koho JP 05,303,126; 1994, [Chem. Abstr. vol.121, 1994, P 95570q.]

10. Conferences

Over 60 conference presentations, several invited talks, most recent presentations:

- American Chemical Society National Spring Meeting, March, New Orleans, **2024**
- MRS Spring meeting San Francisco, California, April **2023**
- AAAFM-2021 UCLA, August 20, **2021**
- American Chemical Society meeting, March, Orlando **2019**
- Invited speaker, NYU-AD conference MEMSC 2018, Nov. 12-14, **2018**
- American Chemical Society meeting, August, Boston **2018**
- American Chemical Society meeting, April 2-6, San Francisco **2017**
- Plenary Speaker at IIUM Malaysia Biotechnology conference, July **2016**
- American Chemical Society meeting, March 13-15, San Diego **2016**
- American Chemical Society meeting, August 16-20, Boston **2015**
- MRS meeting San Francisco, California, April **2015**
- American Chemical Society meeting, Denver Colorado, March **2015**

11. Visiting Professorships

1. New York University, New York City, summer 2012.
2. University of Technology Malaysia, Johor Bahru, Malaysia, June- August 2010
3. University of Technology Malaysia, Ibnu Sina Institute for Fundamental Sciences, Johor Bahru, Malaysia, Jan. 2010.
4. Al Quds University, Nano Technology Lab, Dec. 2009.
5. University of Minnesota, Department of Chemical Engineering and Materials Science, Minneapolis, Minnesota summers 2001-2004, 2006-2009.
6. Qatar University, Doha, Qatar: sabbatical leave 2006-2007.
7. The Hebrew University, Jerusalem, Racah Institute of Physics, summer 2000
8. Montana State University, Bozeman, Montana, summer 1999.
9. University of Southern California, Los Angeles, California, summer 1996