Curriculum vitae

Name	Ziad Yousef Khattari
Date of birth	01/02/1970
City of birth	Irbid (Jordan)
marital status	married (3 kids)
Nationality	Dual Citizenships Jordanian & German

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Education & Qualifications:

Since September 2006	Assistant Professor at Physics Department, Hashemite University, Zarka, Jordan.
January-August 2006	Researcher at Max Planck Institute of Science of light (Erlangen, Germany), research area: cancer cell treatment using biophysical and biochemical methods.
July2003-December 2006	Postdoc researcher at Institute for X-ray Physics, Biophysics Group (Göttingen, Germany), research area: structure and dynamics of membrane proteins using X-ray methods: Reflectivity and Anomalous scattering, FTIR and CD.
July1999-July 2003	Postdoc at the Max Planck Institute of colloid and interfaces (Potsdam, Germany), research area: experimental studies on rheological properties of biomimetic matter using various types of microscopy and optical tweezers.
June 1999	Ph.D. in physics, University of Halle (Germany).
1996-1999	Ph.D. student at the University of Halle (Germany), research area: analytical and computer simulations on mechanical properties of biopolymer at interfaces and surfaces.
1996	Diploma in Theoretical Physics.
1995-1996	Diploma student at the International Center for theoretical Physics Trieste (Italy), research area: quantum liquids.
1992-1995	Master in Physics, Yarmouk University (Jordan).
1982-1995	Master student with Prof. N. Ayoub, Yarmouk University

(Jordan), research area: magnetic properties of ferrofluids.

1988-1992 Undergraduate student at Yarmouk University (Jordan).

Skills and Achievements

- Teaching Experience

1. Teaching assistance at Yarmouk University (Jordan). I have been engaged in teaching most of the laboratory courses in the undergraduate level (1992-1994). Experiments covering the topics done in the theory classes. The courses were dealing with the elementary physics like: Newton's laws of motion, Work and energy and Hook's Law, Conservation of energy, Conservation of linear momentum, Collisions, Rotational Kinematics, rotational dynamics, conservation of angular momentum, Elasticity and Fluids motion. The other type of electricity and magnetism experiments like Gauss's law, Electric potential, capacitors and dielectrics, current and resistance, electromotive force and circuits, the magnetic field, Ampere's law, Faraday's law of induction, A.C. circuits. The last types of laboratory experiments were optic and vibrational mechanics.
2. Teacher at Al-Hekma high school (State of Bahrain). I have been teaching Physics and Mathematic courses at Secondary level (June-September 1996) as part of this duty the laboratory demonstrations were obligatory.
3. Teaching assistance at the Institute for X-ray Physics (Göttingen). Part of my working duties in Göttingen is to orient and introduce the Diploma student in carrying biophysics experiments on solid supported lipid membrane, mainly using X-ray equipments and optical microscopy. This job is done as block-practice in which 3-4 students are enrolled.

- Research Experience

1. During my Ph.D. work my research interests have focused on the dynamical properties of biopolymers. In particular, I have studied the effect of the interactions between the proteins and other macromolecules on their structure and conformation near the interfaces (*e.g.*, cell membrane).
2. During my Postdoc at Max-Planck Institute for Colloids and interfaces, I have tried to bridge the gap between my theoretical work and the experimental one by performing extensive experiments on the biomimetic material at interfaces. This work has been done using different optical and X-ray methods. In particular, The rheological properties of the monolayer (e.g., one leaflet of the cell membrane) upon interaction with macromolecules by optical tweezers and fluorescence microscopy, while the structural changes of the monolayer by Grazing incidence X-ray scattering at the working station BW1 DESY/Hamburg (Germany).
3. As a researcher at the Institute for X-ray physics/ Biophysics Group, my research work is developed to include the effect of the proteins or peptides on the cell membrane. The working tools are mainly X-ray scattering methods. In fact, we are studying lipid-peptides complexes by x-ray reflectivity and anomalous scattering. Such methods are assisting us to determine the direct effect of proteins on the lipid bilayer permeability. Also, we are using the optical methods to monitor morphological changes on the lipid bilayer. FTIR and CD techniques used as complementary technique to determine the conformation and the structure of the protein within the lipid bilayer. For more details about this part of the research see my research activities.

4. Finally, as a researcher at Max-Planck-Institute of Science of light (Erlangen, Germany, my research work was focusing on the development of an optical tweezers setup to treat cancer cells in small capillaries. The medical treatment includes biochemical drugs (i.e., anti-cancer drugs) using UV-light.
5. Currently, I have been appointed as an assistant professor at Hashemite University (Zarka, Jordan). The main duty is teaching at undergraduate and graduate levels. Also, I am trying with the available financial support for the University to establish and biophysics laboratory at the Physics Department.

-Professional Experience on Synchrotron radiation

1. One week at DESY/Hamburg, station BW1 (Germany). In this visiting experiment, we have tried to monitor the liquid-solid phase transition of the monolayer by adsorbing into it ions and proteins using Grazing incidence Scattering.
2. One week at DESY/Hamburg, station D4 (Germany). X-ray reflectivity on different lipid-protein samples on solid supports (Si-wafer). In this experiment the SARS E protein has been extensively studied, the conformation of the protein and the interaction with the lipid bilayer as well as the mechanism of channel formation within the lipid bilayer.
3. Four days at European Synchrotron Radiation Facility (ESRF)/Gernoble, station ID1 (France). Anomalous X-ray reflectivity study to locate a labelled residue of a membrane protein with respect to the lipid bilayer. In this experiment, the fluorescence spectrum of the sample was measured to obtain the anomalous dispersion terms of the atomic scattering factor. We have preformed the reflectivity on five different energies in the vicinity of the absorption edge of the iodine.

- **Research Visits**

1. Visiting Professor at Max-Planck-Institute of Science of light (Erlangen, Germany) (January 3- February 2007).
2. Visiting Professor at Institute for X-ray physics/ Biophysics Group (Göttingen, Germany) (August 1- September 1 2007).
3. Visiting Professor at Institute Experimentalphysik V (Bayreuth, Germany) (June 1- September 1 2008).
4. Visiting Professor at Institute Experimentalphysik V (Bayreuth, Germany) (June 1- September 1 2009).
5. Visiting Professor at Institute Experimentalphysik V (Bayreuth, Germany) (June 1- September 1 2010).
6. Visiting Professor at Institute for X-ray physics/ Biophysics Group (Göttingen, Germany) (June 1- September 1 2011).

Computer Experience

1. Programming: F77, C and HTML.
2. Drawing software: PhotoShop, CorelDraw, Designer, Microsoft Photo Editor, Microsoft Power point and Video Capture.
3. MS Dos, WinNT, win2000/98/95, Unix and Linux.
4. Mathematical softwares: Microsoft Excel, Maple, Mathematica, IMSL Lib., Math. Lab., LabView and Origin.

5. Proteins and Molecules structure modelling packages: WebLab and Chemdraw.

Languages

Arabic (mother tongue), English (Excellent), German (V. good) and Italian (poor).

Publications

1. Z. Khattari, *Interfacial properties of the diblock copolymer at penetrable interfaces: density profile, stretching and interfacial tension*, Macromolecular Theory and Simulations **8** (3), 191-198 (1999).
2. S. Wurlitzer, P. Steffen, M. Wurlitzer, Z. Khattari and Th. M. Fischer, *Line tension in Langmuir monolayers probed by point forces*, J. Chem. Phys. **113**, 3822-3828 (2000).
3. P. Steffen, P. Heinig, S. Wurlitzer, Z. Khattari and Th. M. Fischer, *The translational and rotational drag on Langmuir monolayer domains*, J. Chem. Phys. **115**, 994-997 (2001).
4. Z. Khattari, E. Hatta, D. G. Kurth and Th. M. Fischer, *Cavitation in two dimensional metallo-supramolecular coordination polyelectrolyte amphiphile complexes* J. Chem. Phys. **115**, 9923-9928 (2001).
5. Z. Khattari, P. Heinig, M. Lösche and Th. M. Fischer, *Wetting in asymmetric quasi-2d-systems*, Langmuir **18** (6), 2273-2279 (2002).
6. Z. Khattari, P. Steffen, and Th. M. Fischer, *Cavitation of Langmuir monolayer* , Phys. Rev. E **65**, 041603 (2002).
7. Z. Khattari, and Th. M. Fischer, *Growth of Tilted Domains in an octadecanol Langmuir monolayer using radial temperature gradients*, J. Phys. Chem. B. **108** (36):13696-13699 (2004).
8. Z. Khattari, and Th. M. Fischer, *Shapes of Langmuir monolayer domains in confined geometry*, J. Phys. Chem. B **106** (7), 1677-1683 (2002).
9. Z. Khattari, P. Steffen and Th. M. Fischer, *Migration of gas bubble under the influence of thermal temperature and surfactant*, J. Phys. Condensed. Matter **14**, 4823-4828 (2002).
10. Arbely, E., Khattari, Z., Brotons, G., Akkawi, M., Salditt, T., Arkin, I.,T, *A palindromic transmembrane helical hairpin formed by SARS coronavirus E protein*, Journal of Molecular Biology **341**, 769-779 (2004).
11. Z. Khattari, G. Brotons, I. Arkin and T. Salditt, *SARS E protein in Phosphlipid Bilayer: An Anomalous X-ray reflectivity study*, Physica B **357**, 34-38 (2005).
12. Z. Khattari, A. Rueschel and T.M. Fischer, *Compactification of a myelin mimetic Langmuir monolayer upon adsorption and unfolding of myelin basic protein_*, J. Phys. Chem. B **109**, 3402-3407 (2005).
13. J. Manor, Z. Khattari, T. Salditt, IT. Arkin, *Disorder Influence on Linear Dichroism Analyses of Smectic Phases*, Biophysical J. **89**, 563-571(2005).
14. Z. Khattari, I. Arkin, M. Akkawi and T. Salditt, *SARS E Protein in Phospholipid Bilayer: An X-ray Reflectivity Study*, Biophys J. **90**, 2038-2050 (2006).
15. Khattari, Z., Arkin, I., Salditt, T., *A Comparative analysis of Viral Ion Channel Proteins on Membrane Structure using X-ray Reflectivity*, Eur. Biophys. J. **36**, 45-55 (2006).

16. A. Küsel, Z. Khattari, P. E. Schneggenburger, A. Banerjee, T. Salditt, U. Diederichsen, *Conformation and interaction of a D,L-alternating peptide with bilayer membrane: X-ray reflectivity, CD and FTIR spectroscopy*, ChemPhysChem. **8**, 2336-2343 (2007).

17. Z. Khattari and Th. M. Fischer, *Probing Mechnical properties of Langmuir monolayers with optical tweezers*, Book title "Progress in Colloid and interface Science" Interfacial rheology, Volume I pages: 655-677 (2009).

18. D. Murakami, U. Langer, Z. Khattari and Th. M. Fischer, *Fluorinated Lagmuir monolayers are more viscous than non fluorinated monolayers*, J. Phys. Chem. B **114**, 5370-5376 (2010).

19. S. Aliaskarisohi, P. Tierno, P. Dhar, Z. Khattari and Th. M. Fischer, *On the diffusion of circular domains on a spherical vesicle*, J. Fluid Mech. **654**, 417-451 (2010).

20. C. Jungnickel, Z. Khatatri, T. H. Johansen and Th. M. Fischer, *Field-controlled randomness of colloidal paths on a magnetic bubble lattice*, New J. of Physics **13**, 1367-2630 (2011).

21. S. Abul Jawad, A. S. Abu-surrah, M. Maghrabi, Z. Khattari and M. Al-Obeid, *Electrical impedance of ethylene-carbon nonoxide/propylene-carbon monoxide (EPEC-69) thermoplastic polyketone*, J. Mater. Sci. **46**, 2748-2754 (2011).

22. S. Abul Jawad, A. S. Abu-surrah, M. Maghrabi and Z. Khattari, *Electrical impedance study of elastic alternating propylene-carbon monoxide copolymer (PCO-200)*, Physica B 406, 2565-2569 (2011).

23. S. Abul Jawad, A. S. Abu-surrah, M. Maghrabi and Z. Khattari, *Dielectric behaviour of alternating ethylene-carbon monoxide and ethylene- propylene-carbon monoxide polyketones via impedance spectroscopy*, J. Appl. Polymer Science **122**, (2011).

24. Z. Khattari, U. Langer, S. Aliaskarisohi and Th. M. Fischer, *Optical tweezers study of Langmuir monolayer line tension: Effects of protein and soluble surfactant*, Canadian J. of Pure and Appl. Sciences **5**, 1603-1608 (2011).

25. Z. Khattari, U. Langer, S. Aliaskarisohi, A. Ray and Th. M. Fischer, *Effects of soluble surfactants on the Langmuir monolayers compressibility: A comparative study using interfacial isotherms and fluorescence microscopy*, Materials Science and Engineering C **31**, (2011).

26. Z. Khattari M. Maghrabi, T. McNally and S. Abul Jawad, *Impedance Study of Polymethyl methacrylate Composites Multi-walled Carbon nanotubes (PMMA/MWCNTs)*, Physica B, (2011, Accepted in Physica B).

Presentations

1. Z. Khattari, S. Fantoni, *Effect of ^{3}He in ^{4}He background*, IV international conference on quantum liquids, Trieste, Italy (1995).

2. Z. Khattari, E. Straube, *Diblock copolymer at interfaces: density profile, stretching and interfacial tension*, SFB 438, Halle/S., Germany (1999).

3. Z. Khattari, P. Steffen, Th. M. Fischer, Stress relief in liquid condensed phases of an octadecanol Langmuir monolayer, DPG-Frühjahrstagung, Potsdam, Germany (2000).

4. Z. Khattari, Interactions role in copolymer at interfaces, Discussion Meeting on Multi-Level Ordering by Competing short and Long Range Interactions in Polymers, Ulm, Germany (2000).

5. Z. Khattari, P. Steffen, Th. M. Fischer, Stress Relief in Liquid Condensed Phases of an

Octadecanol Langmuir Monolayer, Gordon research conference, Rhode Island, USA (2000).

6. Z. Khattari, P. Steffen, Th. M. Fischer, Stress Relief in Liquid Condensed Phases of an Octadecanol Langmuir Monolayer: properties of hexatic phases at the champagne/air-interface, LB9, Potsdam, Germany (2000).
7. Z. Khattari, Th. M. Fischer, P. Heinig, M. Lösche, Wetting of Langmuir monolayers at air/water interface and response to external stress, III International Workshop on Current problems in Complex Fluids: Self-assembling Systems, Oaxaca, Mexico (2001).
8. Ziad Khattari, Thomas M. Fischer, Peter Heinig, Mathias Lösche, WETTING OF LANGMUIR MONOLAYERS AT AIR/WATER INTERFACE, ECOF8, Lecce, Italy (2002).
9. Ziad Khattari, Pattern and rheological properties of Langmuir monolayers in the presence of enzymes, *Application for the 5th Schloessmann Fellowship*, München, (2002).
10. Z. Khattari, G. Brotons and T. Salditt, SARE E protein in lipid bilayer, DPG-Frühjahrstagung, Regensburg, Germany (2004).
11. Z. Khattari and T. Salditt, Structure, location of SARS E protein embedded in lipid bilayer: an anomalous X-ray reflectivity (8sxns, Bad Honnef, Germany, and June 28- July 2, 2004).

References

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