

Local Electronic and Geometric Structure of Ions, Molecules, and Polymers in Liquid Phase

Dissertation zur Erlangung des akademischen Grades des Doktors der
Naturwissenschaften (Dr. rer. nat.)

eingereicht im Fachbereich Biologie, Chemie, Pharmazie der Freien Universität
Berlin

vorgelegt von

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Berlin, Deutschland
September, 2007

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Disputation am
16.11.2007

In the beginning God created the heavens and the earth. And the earth was waste and void; and darkness was upon the face of the deep: and the Spirit of God moved upon the face of the waters. And God said, Let there be light: and there was light. And God saw the light, that it was good: and God divided the light from the darkness.
The First Book of Moses, 'Genesis'

I want to know how God created this world... I want to know his thoughts, the rest are details.
Max Born

The sense experiences are the given subject matter. But the theory that shall interpret them is man-made. It is the result of an extremely laborious process of adaptation: hypothetical, never completely final, always subject to question and doubt.
Albert Einstein

Acknowledgment

During my doctor work many colleague, friends, and family members supported me and without them I may not stand long. I would like to thank all of them for this support. Special thanks to *Prof. Wolfgang Eberhardt* for the strong support. He gave me trust as well as motivation that helped me to build my research subjects. My work has been supervised by *Stefan Eisebitt*, starting by building the liquid end-station, measuring, analyzing data, and writing papers. I would like to thank him for the warm discussion, the criticism, and the plenty of time that he offered for me. He means much to me as a supervisor, college, and friend. At BESSY I enjoyed doing other projects, which were outside of my thesis scope. For this, I would like to thank *Hermann Dürr* for allowing me to share with him the pump probe project. I learned a lot from this project. I would like to thank *Matthias Neeb* for allowing me to collaborate with his group in the anionic cluster project. I got from our discussions the flavor of the molecular orbitals' nature of the anionic cluster. I would like also to thank *Philippe Wernet* for our discussion, which affected my way of thinking in career building.

I did most of my experiments at U41-PGM, and I will never forget the support from *Christian Jung* who helped me to let the experiment running in a good shape. I would like to thank him and *Matthias Mast* for the support that they offered me even at the weekends, without them my spectra would be very noisy. Another fruitful opportunity I got at BESSY is to collaborate with *Antje Vollmer* and *Norbert Koch* from Humboldt University in the polymer project. I would like to thank both of them for the nice team work that I really enjoyed.

My NEXAFS experience for liquid would never be extend to XPS without *Bernd Winter*, and *Manfred Faubel*. It was a pleasure for me to work with both of them on the liquid jet XPS setup. I especially want to thank *Bernd Winter* for the heavy scientific

discussion; working with him has strongly increased my knowledge. Special thanks to *Manfred Faubel* for the nice hospitality at Göttingen. My interpretation about XAS in a single electron picture would never be developed to the multiplet without *Frank de Groot*. I would like to thank him for the support he offers me to calculate the spectra. I would like also to thank him for the nice hospitality at Utrecht, Netherlands. I would like to thank *Jinghua Guo* for the positive collaboration using RIXS on liquid system. I am very happy for the many valuable things he taught me at the ALS Berkeley-Lab. Special thanks to *Lars Pettersson* who introduce me to the DFT technique in order to simulate the NEXAFS. I thank him for always answering my mails filled with questions concerning the StoBe code. I want to say thank you to *Jan-Erik Rubensson*. I get to know him in the last year of my doctor research and I wished to know him from the first day of my research. I enjoyed learning a lot from him in scientific as well as personal level. My work is supported by *Prof. Eugen Illenberger* at the FU University. I would like to thank him for following up and assisting my scientific research since the diploma work. I would like to thank *Prof. Jörn Manz* for the support he offered to handle my thesis at the FU University.

I would like to thank *Nora Bergmann* for the patience, the care and the support that she offered for me during my doctor work. She and her family (*Reinhard Bergmann, Elfie Bergmann, Ulf Bergmann*) were a second family for me in Berlin. Finally I would like to thank my family (*Flear Aziz, Sohair Ebrahim, Mariam Flear Aziz, Nadia Ebrahim, Salwa Ebrahim, Saweris Ebrahim, Rizk Ebrahim, Reda Ebrahim*) for giving me love and support from the first day of my life until now.

Parts of this thesis have been published or submitted in the following articles (the order based on the appearance of the subject in this thesis):

1. Molecular and electronic structure in NaCl electrolytes of varying concentration: Identification of spectral fingerprints.
Emad F. Aziz, A. Zimina, M. Freiwald, S. Eisebitt, and W. Eberhardt.
THE JOURNAL OF CHEMICAL PHYSICS 124, 114502 (2006)
Section 4.1
2. Steric hindrance of ion-ion interaction in electrolytes.
Emad F. Aziz, M. Freiwald, S. Eisebitt, and W. Eberhardt.
PHYSICAL REVIEW B 73, 075120 (2006)
Section 4.2
3. Extended cluster between Na and OH at pH13.
Emad F. Aziz, S. Eisebit, W. Eberhardt, L. Cwiklik and P. Jungwirth
JOURNAL OF PHYSICAL CHEMISTRY B (2007) in press
Section 4.3
4. Direct Contact versus Solvent-Shared Ion Pairs in NiCl₂ Electrolytes Monitored by Multiplet Effects at Ni(II) L Edge X-ray Absorption.
Emad F. Aziz, Stefan Eisebitt, Frank de Groot, Jau W. Chiou, Chungi Dong, Jinghua Guo, and Wolfgang Eberhardt.
JOURNAL OF PHYSICAL CHEMISTRY B 111, 4440 (2007)
Section 4.4
5. pH induced protonation of lysine in aqueous solution reveals chemical shifts in x-ray photoelectron spectroscopy.
Dirk Nolting, Emad F. Aziz, Niklas Ottosson, Manfred Faubel, I. V. Hertel, and Bernd Winter.
JOURNAL OF THE AMERICAN CHEMICAL SOCIETY

129(45), 14068 (2007)

Section 5.1

6. Effect of cysteine versus histidine on the electronic structure of Zn^{2+} upon complex formation.

Emad F. Aziz, Wolfgang Eberhardt, Stefan Eisebitt.

Invited paper for Michael Grunze's 60th birthday the Zeitschrift für Physikalische Chemie (2007) in press

Section 5.2

7. Localized charge transfer in a molecularly doped conducting polymer.

Emad F. Aziz, A. Vollmer, S. Eisebitt, and W. Eberhardt, P. Pingel, D. Neher, N. Koch

ADVANCED MATERIALS 19, 3257 (2007)

Section 6

During my PhD, I contributed to the the following publications (this work is not included in this thesis):

1. Femtosecond modification of electron localization and transfer of angular momentum in Ni.

C. Stamm, T. Kachel, N. Pontius, R. Mitzner, T. Quast, K. Holldack, S. Khan, C. Lupulescu, E.F. Aziz, M. Wietstruk, H.A. Dürr, W. Eberhardt

NATURE MATERIALS 6, 740 (2007)

2. Photoinduced Formation of N₂ Molecules in Ammonium Compounds.

Emad F. Aziz, Johan Gråsjö, Johan Forsberg, Egil Andersson, Johan Söderström, Laurent Duda, Wenhua Zhang, Jinglong Yang, Stefan Eisebitt, Christel Bergström, Yi Luo, Joseph Nordgren, Wolfgang Eberhardt, and Jan-Erik Rubensson.

JOURNAL OF PHYSICAL CHEMISTRY A. 111, 9662 (2007)

3. Hydrogen bonds in liquid water studied by photoelectron spectroscopy.

Bernd Winter, Emad F. Aziz, Uwe Hergenbahn, Manfred Faubel, Ingolf V. Hertel
THE JOURNAL OF CHEMICAL PHYSICS 126, 124504
(2007)

4. Photoelectron spectroscopy on small anionic copper-carbonyl clusters.

Jörg STANZEL, Emad F. Aziz, Matthias Neeb, Wolfgang Eberhardt
COLLECTION OF CZECHOSLOVAK CHEMICAL COMMUNICATIONS 72, No.1, 1 (2007) (COVER PAPER)

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