The handle http://hdl.handle.net/1887/30101 holds various files of this Leiden University dissertation.

**Author:** Fedoseev, Gleb Sergeevich  
**Title:** Atom addition reactions in interstellar ice - new pathways towards molecular complexity in space -  
**Issue Date:** 2014-12-10
List of Publications

Astrochemistry (refereed):


Conference proceedings:

Plasma chemistry and physics (refereed):


Conference proceedings:


Curriculum Vitae

I was born in 1985 in Kharkov, in the former Soviet Union. My parents were students at the Kharkov Institute for Radioelectronics and sometimes I was brought to the institute, where I spent my time with other students while my parents were passing exams, thus I can consider it to be the first place that systematically participated in my education.

Upon completion of their studies my parents (and therefore me) first moved to Krasniy Luch, Luhansk, where they were distributed on a factory (electric transformers) which bears the same name as the town. However my parents unsubscribed from this appointment and moved to Orel in 1987 where they joined the Research and Production Association “Autograph” (design and prototyping of pencil graph plotters) and in 1988 we finally settled in Bryansk where my Father was appointed to the Bryansk Plant of Manufacturing Equipment. In Bryansk I attended both elementary (№64) and secondary (№64, Bryansk Municipal Luceum №1) schools.

I never intended to link my life so deeply with the Natural Sciences, however, the excellent education available in school made it - if not the favorite choice - but at least the one of the least resistance. After completing my secondary education I entered the Institute of Chemistry of M.V. Lomonosov Moscow State University (MSU), where I obtained my specialist degree at the Department of Physical Chemistry under the supervision of Assoc. Prof. Dr. K. V. Kozlov, with a thesis devoted to the spatially resolved spectroscopic diagnostics of barrier discharges in humid argon by cross-correlation spectroscopy. During my study at MSU I actively learned Chinese and as a result I was granted with the China Government Scholarship and spent one year of my studies in China at Dalian Polytechnic University. This so far was the richest period of my life from which I keep harvesting new impressions and thoughts even after so many years have passed.

After my graduation from MSU (2008), I joined the Department of Material Science of Moscow State University of Design and Technology as a PhD student under the supervision of Assoc. Prof. Dr. K.V. Kozlov and Prof. Dr. S.V. Rode. During this time I greatly benefited from the DAAD (German Academic Exchange Service) program and spent six months in the Institute of Physics, University of Greifswald, under the supervision of Privatdozent Dr. H.-E. Wagner and Assoc. Prof. Dr. K.V. Kozlov. There I continued to work on plasma diagnostics of barrier discharges at atmospheric pressure by cross-correlation spectroscopy. This work resulted in the publication of several papers and conference proceedings.

Since October 2010, I am a PhD student in the Raymond and Beverly Sackler Laboratory for Astrophysics under the supervision of Prof. Dr. H. V. J. Linnartz, Dr. S. Ioppolo, and Dr. H. M. Cuppen. My position was part of a large EU programme (LASSIE) fully devoted to laboratory studies of solid state astrochemistry. Over these four years,
together with another PhD student, T. Lamberts, I worked on the construction, calibration and application of SURFRESIDE\textsuperscript{2}, an ultra-high vacuum (UHV) system for the investigation of non-energetic surface reactions of interstellar relevant molecules. The use of this system has already led to the publication of nine articles I (co)authored and I hope it will provide many more for students who will decide to link their scientific life with laboratory astrophysics. Seven of these publications are presented here and comprise the body of this thesis.
Acknowledgments

First of all I would like to express my deep gratitude to Kirill Vadimovich Kozlov and Hans-Erich Wagner without whose help the start of my PhD project here would never become possible and to whom I will always be in unpaid depth.

Also I will always hold the warmest feelings about that small, but cozy part of the Laboratory of Catalysis and Gas-phase Electrochemistry devoted to the application of optical emission cross-correlation spectroscopy in the investigation of plasma discharges and for all the people I worked with there. Pavel Aleksandrovich Tatarenko and Kirill Vadimovich were the mentors who watched and guided my first steps as a scientist and (as I came to understand now) they also kept an eye on my steps as a human. The proposition “That doesn’t matter, what matters is the human being a good person” is imprinted in my memories.

Thus far it concerned the oldest and therefore the most distilled remembrances that come to mind when I think about people whom I would like to thank for my work. But now about events that lie closer in time and memories that are therefore fresher. This thesis is the cumulative result of the work of many people. I would like to thank all my co-authors here: Sergio Ioppolo, Thanja Lamberts, Junfeng Zhen, Dongfeng Zhao, Herma Cuppen, Claire Romanzin, the group in LERMA-LAMAp (Cergy), in particular, Marco Minissale, Emmanuele Congiu, François Dulieu, and the group in LASp (Catania): Maria Elisabetta Palumbo and Giuseppe Baratta. I believe that the long and passionate discussions only had a positive effect on the quality of this work.

In the following paragraph I will try to mention all the people who were “visibly” and “invisibly” involved in writing this thesis, I would say it is impossible to mention all of you, but if you will find one of your friends or good colleagues listed here do know that my gratitude is expressed to you as well. First of all I would like to thank people who make things work, among them are the support staff (Evelijn, Yvonne, Anita, Liesbeth), the computer department (Eric, David, Aart) as well as the fine mechanical workshop FMD/ELD, in particular Martijn. I would like to thank all the members of the SLA group with whom I had the pleasure to work with over these four years: Sergio, Thanja, Junfeng, Anton, Karoliina, Joseph, Nadine, Edith, Steven, Daniel, Dongfeng, Jean-Baptiste, Kirstin, Niels, Pablo and the ones who just started in the SLA not long ago: Ko-ju, Vincent, Gustavo, Hèctor. I also wish to thank the AstroChem group for their willingness to assist us both as colleagues and as friends, especially Xiaohu, Irene, Alan and Francisco and who seem to have always been here with me in Leiden Observatory. And my special thanks is addressed to all the LASSIE people with whom we were making the first steps into the world of Laboratory Astrophysics, I don’t want to mention somebody in particular here, because all of them will be always close to me, and there will be no somebody closer than
another, and I’m sure Fabrizio, for example, will agree with me on this point.

These four years in a foreign country would not have been as pleasant and fruitful without so many people around me. I would wish first of all to make a special thanks: for the people who granted me with the endless hospitality in their own country: Thanja, Daniel, Niels; and for the people who were always willing to make even the gloomiest day happy for me: Junfeng, Emanuele, and Sarah; for the people who have never been in the Observatory but were always willing to talk with me in my mother tongue even from far far away: Aleksandr Babkin, Maria Zamiralova, Kristina Chernozemtseva; and for Vladimir Danilov and Vladimir Sushkov, they will probably be surprised to find themselves in this list, but those tea-breaks we had long ago I always missed and remembered with pleasure over here.

And of course at the end we always return to the origins. Therefore I would wish to tell about my Parents, this not only because I know that their love is a feeling that exists outside of the category of time and it is something that will just always be. But also because of Taras Bulba’s words (a story written by Nikolai Vasilievich Gogol): ‘I gave you life I will also kill you’ (a winged words depicting the superiority of a Father’s rights over those of the son). This PhD would have never happened without my parents permission. My last thanks belongs to my nephews: Sasha, Maksim, Sergey, Matvey, Lera, Katya and Kirill they will be able to read this text only after many years passed from now on and, therefore, these final thanks although belong to the past are ironically and willingly addressed to the future.