

Gleb Sergeevich FEDOSEEV

Date/Place of birth: 30.03.1985 / Kharkov, USSR

Languages: English, Chinese, Russian (mother tongue)

Research Experience:

- 2017 – present.
INAF – Osservatorio Astrofisico di Catania, **postdoctoral fellowship** within the "AstroFlt2" program.
- 2016 – 2017.
INAF – Osservatorio Astrofisico di Catania, **postdoctoral fellowship** within the "iALMA" project. “*Complex molecules in star-forming regions*”.
- 2014 – 2016.
Sackler Laboratory for Astrophysics, Leiden Observatory, **postdoctoral scholarship** within the VICI project of The Netherlands Organisation for Scientific Research “*Unlocking the chemistry of the heavens*”, guest-researcher.
- 2010 – 2014.
Sackler Laboratory for Astrophysics, Leiden Observatory, **PhD on** “*Atom Addition Reactions in Interstellar Ice: new pathways towards molecular complexity in space*”. Promotor: Prof. Dr. H.V.J. Linnartz. Co-promotors: Dr. S. Ioppolo, Dr. H. M. Cuppen.
 - + 2010 – 2013.
Member of the EU Framework 7 funded LASSIE network (Laboratory Astrochemical Surface Science In Europe).
- 2008 – 2010.
Department of Materials Science, Moscow State University of Design and Technology, **PhD on** “*Surface treatment in footwear manufacture by means of plasma-chemical reactor with tunable mean electron energy*”. Promotor: Prof. Dr. S.V. Rode. Copromotor: Assoc. Prof. Dr. K. V. Kozlov. The project was interrupted to start my PhD in Leiden.
 - + 09.2010, 02.2010, 06–08.2009, 11–12.2008.
DAAD Student at the Institute of Physics, EMA University of Greifswald, Germany.
 - + 05.2010 - 08.2010 (industry employment).
Researcher at the Department of Carbon Fibers, Institute of New Carbon Materials and Technologies, M.V. Lomonosov Moscow State University
- 2002 – 2008.
Laboratory of Catalysis and Gas Electrochemistry, Department of Physical Chemistry, Institute of Chemistry, M. V. Lomonosov Moscow State University, Russia. **M.Sc. on** “*Plasma diagnostics by cross-correlation spectroscopy in investigation of chemical reactivity of barrier discharge in humid argon*”. Supervisor: Assoc. Prof. Dr. K.V. Kozlov
 - + 2006 – 2007.
Exchange Student, Dalian University of Technology, School of International Cultural Exchange, China.

International secondments and collaborations:

06/2013 (4 weeks): Dr. Maria Elisabetta Palumbo. Laboratory for Experimental Astrophysics, INAF - OACT, Catania, Italy. Research secondment within the LASSIE FP7 Initial Training Network. XCN formation by ion bombardment of ice mixtures of astrochemical interest.

9/2012 (2 weeks): Prof. Dr. Francois Dulieu. LERMA-LAMAp, The University of Cergy-Pontoise, Paris Observatory, Cergy, France. Research secondment within the LASSIE FP7 Initial Training Network. Chemistry of nitrogen oxides on interstellar dust analogues.

09/2010, 02/2010, 06–08/2009, 11–12/2008 (6 months). PD. Dr. H.-E. Wagner. Institute of Physics, EMA University of Greifswald, Greifswald, Germany. DAAD (German Academic Exchange Service) studentship. Radiation kinetics and chemical reactivity of barrier discharges in N₂/He mixtures.

09/2006-08/2007 (12 months): Dalian University of Technology, Dalian, China. I was awarded a 1-year long scholarship of the Chinese Scholarship Council to study Chinese.

Invited contributions on international events:

11/2016 “Solid-state formation of complex molecules under dense cloud conditions”, invited talk for European Conference on Laboratory Astrophysics – “Gas on the Rocks” – ECLA 2016, Madrid, Spain.

10/2014: “Atom Addition Reactions in Interstellar Ices - New Pathways Towards Molecular Complexity in Space”, invited talk for the ISM-SPP Workshop 2014 - Laboratory Astrophysics, Tabarz, Germany.

07/2014: “Determining reaction rates from experiments”, invited talk for the workshop on “Grain-Surface Networks and Data for Astrochemistry” organized by Lorentz Center, Leiden, The Netherlands.

Oral contributions on international events:

11/2014: Oral, HRSMC (Holland Research School of Molecular Chemistry) Lustrum Symposium, Amsterdam.

01/2014: Oral, LYDAN workshop meeting, Leiden.

03/2013: Oral, Workshop “Atomic Processes in Interstellar Ices”, Leiden.

09/2010: Oral, XVIII International Conference on Gas Discharges and Their Applications, Greifswald, Germany.

Poster contributions on (inter)national events:

04/2014: Poster, Faraday Discussion 168 (Ice, dust and gas), Noordwijkerhout, the Netherlands

05/2012: Poster, NAC 2012, Ameland, The Netherlands.

10/2012: Poster, The Chemical Cosmos, COST Action CM0805 Annual Meeting, Catania, Italy.

05/2011: Poster, IAU Symposium 280, The Molecular Universe, Toledo, Spain.

03/2011: Poster, NWO Scientific Meeting on Chemistry Related to Physics & Material Sciences, Veldhoven, The Netherlands.

01/2011: Poster, APChem 2011 Meeting on Astro-Chemistry and Plasma Physics, Eindhoven, The Netherlands.

International school participation:

06/2012: “Chemistry and Infrared Spectroscopy of Interstellar Dust”, Cuijk, The Netherlands.

05/2011: “LASSIE Personal Skills Training event”, Leiden Astrochemistry course, presentation skills, personal effectiveness and communication, time and project management, team work, core qualities and action plan, outreach training.

Other academic activities

- Assistance in organising of the Faraday Discussion meeting “FD168: Astrochemistry of Dust, Gas and Ice”, 7-9 April 2014, Leiden, The Netherland
- Teaching assistant for the bachelor course “Experimental Physics” at Leiden University, spring 2012 and spring 2013
- Lecture course “Conceptions of Modern Science” for the human science bachelors at Moscow State University of Design and Technology, Russia, autumn 2009 and spring 2010.
- Number of lab tours for high school students

List of Publications

Refereed articles

- (1) Chuang K.-J., **Fedoseev G.**, Qasim D., Ioppolo S., van Dishoeck E. F., Linnartz H., “*Production of complex organic molecules: H-atom addition versus UV irradiation*”, 2016, MNRAS, 467, 2552
- (2) Lamberts T., **Fedoseev G.**, Puletti F., Ioppolo S., Cuppen H. M.; Linnartz, H., “*Importance of tunneling in H-abstraction reactions by OH radicals. The case of CH₄ + OH studied through isotope-substituted analogs*”, 2016, MNRAS, 455, 634
- (3) Paardekooper D. M., **Fedoseev G.**, Riedo A. and Linnartz H., “*A novel approach to measure photodesorption rates of interstellar ice analogues - the photodesorption rate of CO ice reinvestigated -*”, 2016, A&A, 596, A72
- (4) **Fedoseev G.**, Chuang K.-J., van Dishoeck E. F., Ioppolo S., Linnartz H., “*Simultaneous hydrogenation and UV-photolysis experiments of NO in CO-rich interstellar ice analogues; linking HNCO, OCN⁻, NH₂CHO and NH₂OH*”, 2016, MNRAS, 460, 4297.
- (5) Lamberts T., **Fedoseev G.**, Puletti F., Ioppolo S., Cuppen H. M., Linnartz H., “*Low-temperature chemistry between water and hydroxyl radicals: H/D isotopic effects*”, 2016, MNRAS, 455, 634
- (6) Chuang K.-J., **Fedoseev G.**, Ioppolo S., van Dishoeck E. F., Linnartz H., “*H-atom addition and abstraction reactions in mixed CO, H₂CO and CH₃OH ices - An extended view on complex organic molecule formation -*”, 2016, MNRAS, 455, 1702.
- (7) Linnartz H., Ioppolo S., **Fedoseev G.**, “*Atom Addition Reactions in Interstellar Ice Analogues*”, 2015, Int. Rev. Phys. Chem., 34, 205.
- (8) Lamberts T., Ioppolo S., Cuppen H. M., **Fedoseev G.**, Linnartz H., “*Thermal H/D exchange in polar ice - deuterium scrambling in space*”, 2015, MNRAS, 448, 3820.
- (9) **Fedoseev G.**, Cuppen H. M., Ioppolo S., Lamberts T., Linnartz H., “*Experimental evidence for Glycolaldehyde and Ethylene Glycol formation by surface hydrogenation of CO molecules under dense molecular cloud conditions*”, 2015, MNRAS, 448, 1288.
- (10) **Fedoseev G.**, Ioppolo S., Linnartz H., “*Deuterium enrichment of ammonia produced by surface N+H/D addition reactions at low temperature*”, 2015, MNRAS, 446, 449.
- (11) **Fedoseev G.**, Ioppolo S., Zhao D., Lamberts T., Linnartz H., “*Low Temperature Surface Formation of NH₃ and HNCO: hydrogenation of nitrogen atoms in CO-rich interstellar ice analogues*”, 2015, MNRAS, 446, 439.
- (12) Lamberts T., Cuppen H. M., **Fedoseev G.**, Ioppolo S., Chuang K.-J., Linnartz H., “*On the relevance of the H₂+O reaction pathway for the surface formation of interstellar water: A combined experimental and modeling study*”, 2014, A&A, 570, A57.
- (13) Ioppolo S., **Fedoseev G.**, Minissale M., Congiu E., Dulieu F., Linnartz H., “*Solid State Chemistry of Nitrogen Oxides - Part II: Surface Consumption of NO₂*”, 2014, Phys. Chem. Chem. Phys., 16, 8270.
- (14) Minissale M., **Fedoseev G.**, Congiu E., Ioppolo S., Dulieu F., Linnartz H., “*Solid State Chemistry of Nitrogen Oxides - Part I: Surface Consumption of NO*”, 2014, Phys. Chem. Chem. Phys., 16, 8257.
- (15) Ioppolo S., **Fedoseev G.**, Lamberts T., Romanzin C., Linnartz H., “*SURFRESIDE²: An ultrahigh vacuum system for the investigation of surface routes of interstellar interest*”, 2013, Rev. Sci. Instrum., 84, 073112.
- (16) **Fedoseev G.**, Ioppolo S., Lamberts T., Zhen J.F., Cuppen H.M., Linnartz H., “*Efficient surface formation route of interstellar hydroxylamine through NO hydrogenation. II. The multilayer regime in interstellar relevant ices*”, 2012, J. Chem. Phys., 137, 054714.

- (17) Congiu E., **Fedoseev G.**, Ioppolo S., Dulieu F., Chaabouni H., Baouche S., Lemaire J. L., Laffon C., Parent P., Lamberts T., Cuppen H. M., Linnartz H., “*NO ice hydrogenation: A solid pathway to NH₂OH formation in space*”, 2012, ApJL, 750, L12.
- (18) Korolenko V. A., Zagoskin A. I., Kozlov K. V., Nikitina T. A., **Fedoseev G. S.**, Samoilovich V. G., “*Plasma Diagnostics of Barrier-Torch Discharge in Argon Flow in a Capillary by Cross-Correlation Spectroscopy*”, 2012, Moscow University Chemistry Bulletin, 67, 1.
- (19) Kloc P., Wagner H.-E., Trunec D., Navratil Z., **Fedoseev G.**, “*Investigation of dielectric barrier discharge in Ar and Ar/NH₃ mixture using cross-correlation spectroscopy*”, 2010, J. Phys. D: Appl. Phys., 43, 345205.
- (20) **Fedoseev G. S.**, Kozlov K. V., Rode S. V., Wagner H.-E., “*Optical emission spectroscopy of a chemically active dielectric barrier discharge plasma in mixtures of argon and nitrogen*”, 2010, Design and Technologies, 17, 122-126 (in Russian).
- (21) **Fedoseev G. S.**, Kozlov K. V., Rode S. V., Wagner H.-E., “*Radiation kinetics of microdischarges in mixtures of argon and nitrogen at atmospheric pressure*”, 2010, Design and Technologies, 17, 117-121 (in Russian).

Non-refereed articles

- (22) Linnartz H., Bossa J.-B., Bouwman J., Cuppen H. M., Cuylle S. H., van Dishoeck E. F., Fayolle E. C., **Fedoseev G.**, Fuchs G., Ioppolo S., Isokoski K., Lamberts T., Öberg K. I., Romanzin C., Tenenbaum E., Zhen J., “*Solid State Pathways towards Molecular Complexity in Space*”, in Proc. IAU Symposium No. 280, The Molecular Universe, Toledo/Spain, 2011. (S)
- (23) Bogaczyk M., **Fedoseev G.**, Wild R., Wagner H.-E., “*Investigation of barrier discharges in He/N₂ mixtures by cross-correlation spectroscopy and surface charge measurements*”, in Proc. 12th International Symposium on High Pressure Low Temperature Plasma Chemistry (HAKONE XII), Trenčianske Teplice/Slovakia, 2010.
- (24) Kozlov K. V., **Fedoseev G. S.**, Wagner H.-E., “*Spatio-temporally resolved spectroscopic diagnostics of the filamentary and diffuse modes of barrier discharges in Ar/N₂ mixtures at atmospheric pressure*”, in Proc. XVIII International Conference on Gas Discharges and Their Applications (GD 2010). Greifswald/Germany, 2010.
- (25) Kozlov K. V., Odic E., Tatarenko P. A., Dodet B., **Fedoseev G. S.**, Kirkpatrick M. J., Samoilovich V. G., Ganciu M., “*Kinetics and chemical reactivity of barrier discharges in humid argon*”, in Proc. 10th Int. Symp. on High Pressure Low Temperature Plasma Chemistry (HAKONE X), Saga/Japan, 2006.