Curriculum Vita

Personal info

Dmitry A. Semenov
Bergheimerstrasse 88
D-69115 Heidelberg
+49 6221 528 453
semenov@mpia.de
http://www.mpia.de/~semenov

Born 20 February 1978 in Saint-Petersburg, Russia
Russian citizen (permanent German residence permit)

Affiliation

Star- and Planet-Formation group,
Max Planck Institute for Astronomy,
Koenigstuhl 17,
D-69117 Heidelberg

Education

2011-present: Staff scientist at the Max Planck Institute for Astronomy, Heidelberg

2005-2011: Postdoctoral researcher at the Max Planck Institute for Astronomy Heidelberg

2000-2005: PhD study at the Astrophysical Institute of the Friedrich Schiller University, Jena. Subject is "Astrophysical modeling - chemical evolution of protoplanetary disks" (Prof. Dr. Th. Henning)

2005: Degree in Astronomy, Friedrich Schiller University ("Magna cum laude")

1995-2000: Study of Astronomy and Mathematics at the Astronomical Department of the St. Petersburg State University, Russia. Master thesis "Modeling of polarization properties of cometary dust grains" (Prof. Dr. N.V. Voshchinnikov), the highest score

1993-1995: Studies in Lyceum 239 for the gifted children (St. Petersburg), with in-depth program in mathematics, physics, chemistry, and astronomy.

Scientific interests

Chemical Evolution of Protoplanetary Disks and the Solar nebula,
Interferometric Observations of Protoplanetary Disks,
Line Radiative Transfer Models of Protoplanetary Disks,
Isotopic Fractionation and Transport Processes in Disks and the Solar nebula

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Teaching

2012-2013: Lecture Course „Molecular Astrophysics“ (2 times), Heidelberg University. PhD/Bachelor level, 2h/week x 12 weeks (together with Dr. H. Kreckel), see http://www.mpia.de/~semenov/Lectures/Lectures.html

2013: Lectures about chemistry in the Universe, „6th HGSFP Winter School“ Obergurgl, Austria

2012: Lecture about chemistry in protoplanetary disks, " Kourovka 41th Winter School", Yekaterinburg, Russia,

2011: Lectures about planet formation, gas and dust in protoplanetary disks, "ALMA Summer School", INAF, Bologna, Italy,

Students

2013-now: R. Teague, PhD study "Tracing early stages of planet formation with submillimeter observations and modeling", Heidelberg University

2010-2013: T. Albertsson, PhD study "Deuterium fractionation chemistry in star-forming regions", Heidelberg University (now post-doc at Max Planck Institute for Radioastronomy, Bonn, Germany)

2012: P. Francuz , Erasmus student from Wroclaw University, Poland. Mini-project "Visualization of life and death of molecules during formation of the Solar system"

2006-2009: A. Vasyunin , PhD study "Chemistry in disks at the verge of planet formation", Heidelberg University (now post-doc at NRAO, Charlottesville, USA)

2004: M. Matschiner & A. Sambale. Mini-project "Chemical routes to the origin of the life building blocks in space", MPIA Heidelberg

Fellowships & Awards

2014-2016: DFG SPP 1385 "The first 10 million years of the Solar nebula", individual grant SE 1962/1-3 (160,000 euro)

2013: Best senior paper award, DFG SPP 1385 (1,500 euro)

2012-2014: DFG SPP 1385 "The first 10 million years of the Solar nebula", individual grant SE 1962/1-2 (160,000 euro)

2010-2013: FP7-PEOPLE-ITN_2008, "Laboratory Astrochemical Surface Studies in Europe", EC Grant 238258 (for a PhD student) (70,000 euro)

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2010-2012: DFG SPP 1385 "The first 10 million years of the Solar nebula", individual grant SE 1962/1-1 (160,000 euro)

2003-2006: DFG-RFFI grant 436 RUS 113/682, "Self-consistent modeling of the dynamics and chemistry of molecular clouds in different evolutionary stages"

1999-2000: INTAS grant 99/652

Long-term visits

2005-present: Visiting scientist of the group of Prof. A. Dutrey, Bordeaux Obs., France (several months)

11-12/2009: Visiting scientist of the group of Prof. A. Glassgold, University of California at Berkeley, USA

10/2006: Visiting scientist of the group of Prof. E. Herbst, Ohio State University, USA

05/2005: Visiting scientist of the group of Prof. B. Shustov, INASAN Moscow, Russia

1999-2000: Visiting scientist of the Astrophysical Institute of the Friedrich Schiller University, Jena (four months)

Large programs

2004-present: "Chemistry in Disks" collaboration between MPIA, Jena Obs. (Germany), Bordeaux Obs.,IRAM (France), SETI Institute, Virginia Univ. (USA), National Astrochemistry Center (ROC), Vienna Obs. (Austria). Observations at sub-millimeter wavelengths at IRAM facilities, Effelsberg 100-m antenna, and ALMA (>300 hours total)

2014-2017: „Fragmentation and disk formation during high-mass star formation" at Plateau de Bure Interferometer, co-I (PI is Dr. H. Beuther, MPIA) (300 hours)

Proposals

Atacama Large Millimeter Array, Plateau de Bure Interferometer, Submillimeter Array, APEX, IRAM 30-m antenna, Effelsberg 100-m antenna (some with data reduction)

Referee

ApJ, A&A, MNRAS, NASA "Origins of Solar System", National Science Foundation (USA), ANR (France), European Research Council (ERC)

Organization of conferences

2014: „Grain-Surface Networks and Data for Astrochemistry", Leiden, NL

2014: „Chemical Diagnostics in the ALMA/NOEMA Era", MPIA Heidelberg

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2008: "Early Phases of the Star Formation" meeting, Ringberg Castle, Germany

2004: "Chemistry in Disks: Algorithms and Results", MPIA Heidelberg'

Membership

American Chemical Society, Royal Chemical Society
International Astronomical Union:
Division XII Commission 14 Atomic & Molecular Data
Division III Commission 51 Bio-Astronomy
Division VI Commission 34 Interstellar Matter
Division X Commission 40 Radio Astronomy

Languages Russian (mother tongue), English (business fluent), German (fluent)

Computer skills Expert: Fortran 77/90, IDL, Python, Bash. Intermediate: HTML, PHP

Important oral presentations on international meetings:

1) “On the feasibility of disk chemical modeling”, JENAM 2003, Budapest, Hungary, 08/2003
2) “The disk of AB Aur”, Modeling the structure, chemistry and appearance of protoplanetary disks, Ringberg workshop, Germany, 04/2004
3) “Non-Stationary Chemistry in Disks: The Role of Turbulent Mixing and Advective Transport”, PLANETS workshop, Leiden, Holland, 12/2005
4) “Gas-grain chemistry in dynamic disks”, Molecules in Space & Laboratory, Paris, France, 5/2007
5) “Polyatomic ions in space”, Cold ion beams meeting, Heidelberg, Germany, 06/2008
6) "Complex chemical models of protoplanetary disks", Surface Chemistry workshop, Lorentz Centrum, Leiden, NL, 10/2008
7) "Modeling and observations of chemical evolution in protoplanetary disks", Planet Formation meeting, Tuebingen, Germany, 02/2009
8) Invited talk, "Chemical Evolution of Protoplanetary Disks", UC at Berkeley, USA, 12/2009
9) Invited talk, "Chemical Evolution of Protoplanetary Disks", ITA Heidelberg, Germany, 02/2010
10) Invited talk , "Chemistry of a protoplanetary disk", IAU Symposium 280, Toledo, Spain, 6/2011
11) Invited talk, "Chemical Evolution of Protoplanetary Disks in the pre-ALMA era", Vienna Obs., Austria, 11/2011
12) "Deuterium Chemistry in Cold and Warm Environments", Astrochemistry at Intermediate and Warm Temperatures, Tallinn, Estonia, 05/2012
13) Invited talk, „Atomic processes in ices: a modeler's perspective“, Atomic Processes in Interstellar Ices, Leiden, NL, 03/13

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14) Invited talk, „Millimeter observations and modeling of planet-forming disks“, Protostars & Planets VI, Heidelberg, Germany, 07/13

15) Invited talk, „The general outline of a gas-grain code“, Grain-Surface Networks and Data for Astrochemistry, Leiden, NL, 07/14

Academic References

Prof. Dr. Eric Herbst, Department of Chemistry, University of Virginia, McCormick Road PO Box 400319, VA 22904 Charlottesville, USA. Email: ericherb@gmail.com

Prof. Dr. Ewine van Dishoeck, Leiden Observatory, P.O. Box 9513, NL - 2300 RA Leiden, Netherlands. Email: ewine@strw.leidenuniv.nl

Prof. Dr. Anne Dutrey, Bordeaux Observatory, OASU, L3AB, 2 rue de l'Observatoire, F-33270 Floirac, France. Email: Anne.Dutrey@obs.u-bordeaux1.fr

Prof. Dr. Thomas Henning, Max Planck Institute for Astronomy, Koenigstuhl 17, D-69117 Heidelberg, Germany. Email: henning@mpia.de