

Dmitry Semenov

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AFFILIATION:

Researcher at the Department Chemie, Ludwig-Maximilian-Universität, Butenandtstr. 5-18, D-81377 München, Germany (since 2017);
Staff member of the Max-Planck-Institut für Astronomie, Königstuhl 17, D-69117 Heidelberg, Germany (since 2011; non-permanent contract)

EDUCATION & EXPERIENCE

2005-2011: Post-doc, Max-Planck-Institut für Astronomie, Heidelberg

2000-2005: PhD study, Astrophysikalisches Institut und Universitäts-Sternwarte, Friedrich-Schiller-Universität, Jena. PhD Thesis „Astrophysical modeling - chemical evolution of protoplanetary disks“ (advisor: Prof. Dr. Th. Henning). Degree in Astronomy ("magna cum laude")

1995-2000: Master study of Astronomy and Mathematics at the St. Petersburg State University, Russia. Master thesis in Astronomy „Modeling of polarization properties of cometary dust grains“ (advisor: Prof. Dr. N. Voshchinnikov), the highest score

ACTIVITIES

Teaching

- **2012-2017:** Lectures on „Molecular Astrophysics“ for PhD students, Heidelberg Uni. (2h/week x 12 weeks)
- **2014-2015:** Seminar for IMPRS students, Heidelberg Uni. (2h/week x 12 weeks)
- **2014-2015:** Bachelor seminar about minor bodies of the solar system, Heidelberg Uni. (2h/week x 12 weeks)
- **2013:** 3 lectures about chemistry in the Universe, PhD students of Heidelberg Uni., „6th HGSFP Winter School“, Obergurgl, Austria

Supervision of students

- **2018-2022:** G. Smirnov-Pinchukov, PhD study, IMPRS Heidelberg
- **2017-2018:** M. Simončič, Master Degree study, Ljubljana Uni., Slovenija
- **2017-2018:** C. Gieser, Master Degree study, Heidelberg Uni.
- **2013-2017:** R. Teague, PhD study, Heidelberg Uni.
- **2017-2017:** Ch. Merscher, Bachelor study, Kaiserslautern Hochschule
- **2015-2015:** C. Xue (Xiamen University), summer intern at MPIA, 3 months
- **2010-2013:** T. Albertsson, PhD study, Heidelberg Uni.
- **2012-2012:** P. Francuz (Wroclaw University), Erasmus student, 3 months
- **2006-2009:** A. Vasyunin, PhD study, Heidelberg Uni.

Awards

- **2018-2021:** DFG SPP 1833/II „Building a Habitable Earth“, 3-year award x 275,000 euro
- **2018:** Cozzarelli prize from PNAS for the best article of 2017
- **2016-2018:** Private grant from the Heidelberg Institute of Theoretical Studies (160,000 euro)
- **2010-2013:** FP7-PEOPLE-ITN_2008 „LASSIE“, EC Grant 238258 (for a PhD student) (70,000 euro)
- **2010-2016:** DFG SPP 1385 „The first 10 million years of the Solar nebula“, 3 awards every 2 years. Each award was ~160,000 euro

Scientific Interests

- Astrochemistry
- Astrophysics of Protoplanetary Disks and the Solar Nebula
- Origin of Life

PUBLICATIONS

Summary: >70 refereed papers, >2300 citations, h-index = 32

Top 10 peer-reviewed publications:

1. **Semenov, D.**, Henning, Th., Ilgner, M., Helling, Ch., Sedlmayr, E. (2003), Opacities in protoplanetary discs, **A&A**, 410, 611
2. **Semenov, D.**, Wiebe, D., Henning, Th. (2004), Reduction of chemical networks. II. Analysis of the fractional ionisation in protostellar discs, **A&A**, 417, 93
3. **Semenov, D.**, Hersant, F., Wakelam, V., Dutrey, A., Chapillon, E., Guilloteau, St., Henning, Th., Launhardt, R., Piétu, V., Schreyer, K. (2010), Chemistry in disks. IV. Benchmarking gas-grain chemical models with surface reactions, **A&A**, 522, 42
4. Vasyunin, A. I., **Semenov, D.**, Henning, Th., Wakelam, V., Herbst, E., Sobolev, A. M. (2008), Chemistry in Protoplanetary Disks: A Sensitivity Analysis, **ApJ**, 672, 629
5. **Semenov, D.**, Wiebe, D. (2011), Chemical evolution of turbulent protoplanetary disks and the Solar nebula, **ApJS**, 196, 25
6. Albertsson, T., **Semenov, D.**, Vasyunin, A., Henning, Th., Herbst, E. (2012), New extended deuterium fractionation model: assessment at dark ISM conditions and sensitivity analysis, **ApJS**, 207, 27
7. Henning, Th., **Semenov, D.** (2013), Chemistry in Protoplanetary Disks, in a special issue „Astrochemistry“ of Chem. Reviews, 113, 9016 (arXiv:1310.3151)
8. Albertsson, T., **Semenov, D.**, Henning, Th.. (2014), Chemodynamical Deuterium Fractionation in the Early Solar Nebula: The Origin of Water on Earth and in Asteroids and Comets, **ApJ**, 784, 39
9. Pearce, B., Pudritz, R., **Semenov, D.**, Henning, Th. (2017), Origin of the RNA world: The fate of nucleobases in warm little ponds, PNAS, 114, issue 43, 11327
10. **Semenov, D.**, Favre, C., Fedele, D., et al. (2018), Chemistry in Disks XI. Sulfur-bearing species as tracers of protoplanetary disk physics and chemistry: the DM Tau case. Accepted by **A&A** (arXiv:1806.07707)