

Lars G.M. Pettersson

Professor in Theoretical Chemical Physics, Department of Physics, Stockholm University, Sweden
Swedish Nationality, Born April 13, 1951, URL <http://xsolasgroup.fysik.su.se/>

Scientific Achievements:

Author and co-author of more than 340 scientific publications, including 5 book chapters and one edited book. Papers published in Nature, Science, PNAS, Nature Chemistry, Nature Communications, Scientific Reports, Physical Review Letters, JACS, JCP, Nano Letters etc which are cited more than 23000 times (H-index 82) on Google Scholar (see link below), 17800 times (H-index 71) on ISI Web of Science. In 2004, the study of water by Pettersson and coworkers, was selected by Science Magazine as one of the 10 most important scientific breakthroughs of the year.

Web of Science: J-4925-2013

Google Scholar: <http://scholar.google.se/citations?user=MMf9fOcAAAAJ>

• EDUCATION

- 1976 B. Sc. in Physics, Department of Physics, Stockholm University, Sweden
- 1984 PhD Theoretical Physics, Department of Physics, Stockholm University, Sweden
Thesis: *Studies in Molecular Structure and Bonding Using Effective Core Potential and Accurate CI Methods*
- 1988 Docent, Theoretical Physics, Department of Physics, Stockholm University, Sweden

• CURRENT POSITION

2000 – Professor in Theoretical Chemical Physics, Department of Physics, Stockholm University, Sweden

• PREVIOUS POSITIONS

- 1977 Teaching Assistant, Royal Institute of Technology, Stockholm, Sweden
- 1978-1984 Teaching Assistant, Department of Physics, Stockholm University, Sweden
- 1984-1985 Postdoctoral Fellow, IBM Res. Lab (with P.S. Bagus) and NASA Ames (with C.W. Bauschlicher), CA, USA
- 1985-1986 National Research Council Research Assoc., NASA Ames, CA, USA
- 1986-1988 Natural Science Research Council (NFR) Research position, Department of Physics, Stockholm University, Sweden
- 1988-1990 Research Assistant, Department of Physics, Stockholm University, Sweden
- 1990-2000 Lecturer, Department of Physics, Stockholm University, Sweden

• FELLOWSHIPS AND AWARDS

- 1998 Guest Professor, 6 months, Institute for Molecular Science (IMS), Okazaki, Japan.
- 2002 Three papers selected by *Science* as Editor's Choice: *J. Phys.: Condens. Mat.* **14**, L213&L221 (*Science*, **295** (2002) 1975); *Phys. Rev. Letters* **89** (2002) 276102 (*Science* **299** (2003) 475).
- 2004 Paper: *Science* **304** (2004) 995 selected for Science Top Ten Breakthroughs 2004 (*Science* **306** (2004) 2013-2017).
- 2005 Special Award, Foundation for Strategic Research in Sweden, in honor of the selection of the Science article on water by Science Magazine as one of the top 10 breakthroughs of 2004.

• SUPERVISION OF GRADUATE STUDENTS AND POSTDOCTORAL FELLOWS

Since 1992 I have supervised the thesis work of 15 PhD theory students (Hans Åkeby, 1992; Martin Nygren, 1995; Luciano Triguero, 1998; Mats Nyberg, 2000; Barbara Brena, Lic 2003; Elly Karlsen, 2003; Matteo Cavalleri, 2004; Mikael Leetmaa, 2009; Mathias Ljungberg, 2010; Thor Wikfeldt, 2011; Henrik Öberg, 2014; Daniel Schlesinger, 2015; Rasmus Karlsson, 2015; Iurii Zhovtobriukh, 2019; Chang Liu, 2019) and have been cosupervisor of an additional 9 PhD experimental students. At present I supervise 1 PhD student and 4 Postdoctoral fellows working on theory and simulations.

Postdoctoral Fellows: José-Luis Pascual, Universitá Autonoma, Madrid, 1995-1996; Edward Fomin, Akademgorod, Novosibirsk, 1997-1998; Alexander Pelmeshnikov, Universitá dell'Insubria, Como, Italy, 1999-2001; Christine Kolczewski, Bochum, Germany, 2001-2002; Osamu Takahashi, Hiroshima University, Japan, 2003-2004; Prakash Jha, Bangalore, India, 2009-2010; Jibiao Li, Chinese Academy of Sciences, Wuhan, China, 2009-2010; Jerry LaRue, Stanford University, USA, 2014-2015; Elias

Diesen, MPI Dresden, Germany, 2016-2018; Rasmus Karlsson, KTH, 2017; Gaia Camisasca, Roma 3, Italy, 2017-2019; Svante Hedström, Lund, 2017-2018; Joakim Halldin Stenlid, KTH, 2017-2020; Egon Campos, UFMG, Brazil, 2019-; Gabriel Rodrigues, UFMG, Brazil, 2019-; Rafael Barros, Uppsala, 2019-; Mikael Valter, CTH, 2020-

- **SELECTED TEACHING ACTIVITIES**

2005 – 2018 *Mathematical methods of physics*, Graduate level, Dept. of Physics, Stockholm University
2002 – 2003 *Quantum Mechanics*, Undergraduate Level, Dept. of Physics, Stockholm University
1998 – 99, 01 *Quantum Physics*, Undergraduate Level, Dept. of Radiation Physics, Stockholm University
1997 – 2001 *Computer Chemistry*, Chemistry Department, Stockholm University
1988 – 1995 *Quantum Mechanics*, Undergraduate Level, Dept. of Physics, Stockholm University
1994 & 1998 *Computational Chemistry*, Hanoi University and Ho Chi Minh University, Vietnam
1988 – 2020 Additional courses taught: *Thermodynamics, Advanced Problem Solving, Geometrical Optics, Chemical Surface Physics, Experimental Methods in Physics, Environmental Physics, Simulation Techniques in Statistical Physics*

- **ORGANISATION OF SCIENTIFIC MEETINGS**

2003 Organizer, deMon Density Functional Theory workshop, Stockholm, Sweden, with 30 international participants.
2006 Organizer, *Stockholm Discussion Meeting on Water Structure and Molecular Scale Properties*, Stockholm, Sweden, with 40 invited participants from leading international groups.
2014 Organizer of the Nordic Institute of Theoretical Physics (Nordita) Program, *Water-the Most Anomalous Liquid*, held October 13-November 7, 2014, in Stockholm, Sweden. Four weeks with a total of 108 invited international participants. Published as a Special Issue in *Chemical Reviews*, July 13, 2016, with 11 topical reviews.
2018 Organizer of Erice School, *Water and Water Systems - The hydrophobic effect*, Italy (2018)

- **INSTITUTIONAL RESPONSIBILITIES**

1990 – Faculty member, Department of Physics, Stockholm University
2004 – 2018 Member, Committee for Research Strategy, Department of Physics, Stockholm University

- **COMMISSIONS OF TRUST**

1997 – 1998 Scientific Evaluation Committee, National Supercomputer Center (NSC)
1999 – 2002 Swedish National Allocations Committee for High-Performance Computing (SNAC)
2003 – 2008 Assistant program leader of Foundation for Strategic Research (SSF) materials program *Biomimetic Enzyme Catalysis*
2003 Faculty opponent for thesis of Jan Rossmesl, DTU, Copenhagen, Denmark
2004 Faculty opponent for thesis of Sheng Meng, Chalmers Technical University, Gothenburg, Sweden
2010 Faculty opponent for thesis of Gloria Mazzone, Università della Calabria, Italy
2013 Faculty opponent for thesis of Susi Lehtola, University of Helsinki, Finland
2018 Faculty opponent for thesis of Rogelio Isaac Delgado Venegas, CINVESTAV, Mexico City

Reviewer for (among others): *Nature Chemistry, Nature Reviews Chemistry, Nature Communications, Scientific Reports (Nature), Phys. Rev. Letters, J. Chem. Phys., Chem. Phys., Chem. Phys. Letters, J. Phys. Chem., PhysChemChemPhys, J. Chem. Theory. Comp., Inorg. Chem., Frontiers of Physics, Chemical Reviews.*

Evaluator of proposals for (among other): BES Early Career (2010), Finnish Academy of Science (2017), DOE-BES (USA) (2018).