

# Curriculum vitae of Rolf Walder

## Dates

Since 2008	Full professor for physics, École Normale Supérieure de Lyon (ENS-Lyon), France. Member of the Centre de Recherche Astrophysique de Lyon (CRAL).
2008	Senior Research Associate and Lecturer, Observatoire de Genève, Switzerland.
2005 – 2008	Associated scientist, Institute of Astronomy, ETH Zürich. Visiting scientist at Max Planck Institute for Astrophysics, Garching, Germany; ‘Université Louis Pasteur’, Strasbourg, France; Department of Physics, University of Pisa.
2002 – 2005	Senior Research Associate at the University of Arizona, Tucson ,USA, and at the SciDAC (Scientific Discovery by Advanced Computing) Supernova Science Center.
1997 – 2008	Lecturer at the Physics Department and the Interdisciplinary Curriculum Computational Science and Engineering of ETH Zürich and the Faculty of Science, University of Zürich.
1995 – 2001	Senior Research Associate at the Institute of Astronomy, ETH, Zürich. Leader of the project <i>Radiation-hydrodynamical simulations in astrophysics</i> .
1994	PhD-thesis (Dr. sc. nat.) at ETH, Zürich, Switzerland.
1988 – 1995	Research and teaching assistant at the Seminar for Applied Mathematics and the Institute of Astronomy, ETH Zürich. Several research visits at the Department of Applied Mathematics, University of Washington, Seattle, USA.
1986 – 1988	Studies in physics at the University of Zürich, diploma/master in theoretical physics.
1973 – 1986	Suspension of the studies in physics. Professional activity (electronics) and studies in philosophy, history, and political sciences.
1973	First pre-diploma (1. Vordiplom) in physics, ETH Zürich, Switzerland.
1960 – 1972	Elementary and high school in Hinwil and Wetzikon, Maturität Typus C.
January 1, 1953	Born in Wetzikon, Zürich, Switzerland. Swiss citizen.

## Scientific skills

<b>Physics</b>	My work in computational astrophysics obliged me to acquire profound knowledge in the fields of plasma physics, gas dynamics, transport phenomena, radiation, atomic-, nuclear-, and particle-physics, statistical physics, and thermodynamics. I am a specialist in analyzing and simulating physically complex objects.
<b>Mathematics</b>	For the same reason, I had to achieve detailed understanding in the fields of partial differential equations, kinetic equations, numerical analysis, linear algebra, group theory, and statistics.
<b>Computer Sciences</b>	Likewise, I gained qualified knowledge of simulation techniques and graphical visualization, of most hardware-architectures of supercomputing, and of various common programming languages. 1995-1998, I was deputy informatics-coordinator and co-responsible for the Unix system management at the Institute of Astronomy at ETHZ.

## Professional experiences

- Teaching**
- I have designed courses on the post-graduate and graduate level in the fields of astrophysics, physics, computational sciences, and numerical algorithms. The lectures were held at ENS-Lyon, ETH and University of Zürich, École Doctorale Astronomie & Astrophysique d'Île de France, and at specific, week-long workshops.
  - I have supervised several PhD- and diploma-thesis in astrophysics, computational sciences, and numerical analysis at ENS-Lyon, ETH Zürich, Université Louis Pasteur, Strasbourg, France, and University of Utrecht, Netherlands.
  - Since 2010, I am a member of the time-allocation board of the French supercomputer facility, GENCI.
- Scientific management**
- Since 2007, I am principal investigator of the computational project *Stellar Cosmic Engines in Galaxies*, a collaboration between ETH Zürich, Observatoire de Genève, University of Pisa, University of Washington, and the Russian Academy of Sciences.
  - 2002-2005, I have been co-responsible for the development of multi-dimensional neutrino-hydrodynamics within the Supernova Science Center of the SciDAC-program of the US Departments of Energy and Education.
  - 1993-2001, I have built up a computational science group at the Institute of astronomy at ETH Zürich and have been leader of the high-performance computing project *Radiation-hydrodynamical simulations in astrophysics*. The ETH school board awarded this project by granting a parallel computer.
  - 1993–2002, I have been member of the Scientific Committee of the Leonhard Euler Center, the Swiss pilot center of ERCOFTAC, the European Research Community of Flows, Turbulence, and Combustion.
  - I have international collaborations with applied mathematicians (computational methods), computer scientists (graphics and visualizations).
  - As co-investigator, I participated in several international astronomical observational campaigns (Hubble Space Telescope, XMM-Newton, VLBA, VLT).

## Varia

- Diploma and qualifications**
- Diploma in theoretical physics of the University of Zürich, 1988. Thesis on *X-ray background radiation of the universe*, professor N. Straumann.
  - PhD of ETH Zürich, 1994 (Dr. sc. nat., ETH Diss Nr. 10302). Thesis on *Some aspects of the computational dynamics of astrophysical nebulae*, professor H. Nussbaumer, Physics Department, ETH Zürich and professor R.J. LeVeque, Department of Applied Mathematics, University of Washington, Seattle, USA.
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- Languages**
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| <i>Swiss German</i> : mother tongue         | <i>German</i> : fluent, oral and written |
| <i>English</i> : fluent, oral and written   | <i>French</i> : fluent, oral and written |
| <i>Italian and Spanish</i> : some knowledge |  |

- Knowledge in other fields**
- I have a strong interest in and have achieved a good knowledge of politics, history, and literature. I am a regular reader of several newspapers and have a keen interest in the development of today's world.

- Relaxation**
- Music, in particular jazz and folklore; Reading; Cooking; Traveling; Mountaineering.