

# Curriculum Vitae

## Alexander Lichtenstein

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ResearcherID: K-8730-2012



### Personal data

Born: 4 May 1955, Ekaterinburg, Married, 2 children  
Nationality: German

### Education and Professional Experience

- 1972–1977 Studies of physics, mathematics and astronomy at the University of Ekaterinburg
- 1977 Diploma in Theoretical Physics, University of Ekaterinburg
- 1982 Ph. D., University of Ekaterinburg  
Thesis: „Magnetic Transition State and the Theory of Exchange Interactions“  
Thesis advisor: Prof. Dr. A. S. Moskvina
- 1982–1988 Senior Staff Member, Institut of Solid State Chemistry, Urals Science Center, Ekaterinburg
- 1989–1995 Member, Max-Planck-Institut für Festkörperforschung, Stuttgart
- 1995–1998 Staff Member, Forschungszentrum Jülich
- 1998–2004 Full Professor of Theoretical Physics, University of Nijmegen, Netherlands
- since 2004 Full Professor of Theoretical Physics, University of Hamburg

### Awards

- State Prize for young scientists of Russia, 1988
- State Prize of Russia in science and technology, 1995
- Intel Rusnano Prize in high-performance computing for nanotechnology, 2008

### Service in the Scientific Community

Head of the FOM-Program, The Netherlands *Electronic structure of materials* (1999-2004)  
Director of the half-year Program *Realistic Theories of Correlation Electron Materials* at the Kavli Institute of Theoretical Physics, University of California at Santa-Barbara, USA (2002)  
Vice spokesman of the Collaborative Research Center (SFB 668) *Magnetism from single atom to nanostructure*, University of Hamburg (since 2006)  
Vice Spokesman of the Research Unit (FOR 1346) *Dynamical Mean-Field Approach with Predictive Power for Strongly Correlated Materials* (since 2010)  
Member of EU Flagship Program *Graphene* (since 2013)  
Member of Editorial Board of *Solid State Communications* (since 2011)

## Conference Organization (since 2008)

- International Workshop on *New computational methods in Quantum many-body theory*, 10-14.08, 2009, Lorentz Center, Leiden, The Netherlands.  
(together with M. Katsnelson, A. Millis)
- CECAM Workshop on *Recent Developments in Dynamical Mean Field Theory*, 28-30.09, 2009, ETH, Zurich, Switzerland  
(together with Ph. Werner, M. Sigrist)
- Modern computational approaches in iron based alloys, 1.10-6.10, 2009, Ekaterinburg, Russia  
(together with Y. Gornostyrev, M. Katsnelson)
- Realistic theories of correlated electrons in condensed matter, 01-08.08, 2010, Moscow-Volga  
(together with A. Rubtsov)
- CECAM Workshop on *Perspectives and Challenges of Many-Particle Method*, 19-23.09, 2011, Bremen, Germany  
(together with Th. Frauenheim, Ch. Ochsenfeld, A. Savin)
- Autumn School on *Hands-on LDA+DMFT* 4-7.10, 2011, Jülich, Germany  
(together with E. Pavarini, E. Koch, D. Vollhardt)
- Workshop on *Spin-dynamics and Kondo effects in STM*, 14-16.12, 2011, Hamburg, Germany
- International Workshop on *Dynamical Mean-Field Approaches for Strongly Correlated Materials*, MPI CPS, 25-28.09, 2012, Dresden, Germany  
(together with D. Vollhardt, M. Haverkort, L. H. Tjeng)

## Scientific Publications: more than 250 papers with h-index 52 and 4 monographs:

1. *Strong Coulomb Correlations in Electronic Structure Calculations*.  
V.I. Anisimov and A.I. Lichtenstein  
Gordon and Breach Science Publishers. Advance in Condensed Matter Science: (2000), p. 97-161.
2. *Magnetism and the Electronic Structure of Crystals*.  
V.A. Gubanov, A.I. Lichtenstein, A.V. Postnikov.  
Springer Series in Solid-State Sciences v. 98, 1992, 180 p.
3. *Electronic Structure of Impurities and Defects in Transition Metals, their Alloys and Compounds*.  
V.I. Anisimov, V.P. Antropov, V.A. Gubanov, A.I. Ivanovsky, E.Z. Kurmaev,  
A.I. Lichtenstein, A.V. Postnikov.  
Nauka, Moscow, 1989, 223 p.
4. *Magnetism and Chemical Bonding in Crystal*.  
V.A. Gubanov, A.I. Lichtenstein, A.V. Postnikov,  
Nauka, Moscow, 1985, 245 p.

## Selected research topics and accomplishments:

Research topics: theory of exchange interactions in magnetic materials based on the density functional approach. Development of efficient computational schemes which combine the precision of first-principle band-structure schemes with the complex treatment of electron-electron correlations for d- and f-electron systems (LDA+U, LDA+DMFT). New generation of continuous time quantum Monte-Carlo methods for multiorbital impurity problem. Investigation of non-local correlation effects in low-dimensional quantum systems within fully renormalized dual-fermion perturbation.