



Curriculum Vitae

ULRIKA MAGNEA

Ph.D. in Theoretical Physics – State University of New York at Stony Brook, 1995

E-mail: blom@to.infn.it

Citizenship: Finland

Mother tongue: Swedish

Date and place of birth: Oct. 28, 1961 in Vörå, Finland

Civil status: Married with two grown-up children

Homepage: <http://www.ph.unito.it/~blom>

ACADEMIC HISTORY

Doctor of Philosophy (Theoretical physics)
(Fulbright scholar)
State University of New York at Stony Brook
Stony Brook, NY, August 1995

Master of Philosophy (Physics)
Åbo Akademi University
Turku, Finland, March 1987

Additional credits in physics, chemistry and mathematics
Åbo Akademi University (21 additional credits)
University of Helsinki (12 additional credits)

WORK EXPERIENCE

Adjunct professor of physics
Università degli Studi di Torino (Department of Agricultural, Forest and Food Sciences and Technologies)
From February 2014

Accepted into the body of the teaching staff
Politecnico di Torino Turin, Italy
August 2012

Freelance translator (Italian to English)
Compassion Italia (non-profit organization) Turin, Italy
January 2012 – June 2012
Muller Worldwide Links (passed translation test for Italian to English, scientific texts)

Adjunct professor of physics and mathematics
Università degli Studi di Torino (Department of Biology)
October 2010 – October 2011
Mathematics for biologists (functions, limits, calculus, simple differential equations)
Physics for biologists (mechanics, hydrodynamics, thermodynamics, electrodynamics, optics, acoustics, atomic and radiation physics with applications in medicine and biology)
Teaching language: Italian

Adjunct professor of mathematics
St. John International University
2009 Vinovo, Turin area
Algebra for students of design and architecture
Teaching language: English

Researcher
Institute of Atmospheric Sciences and Climate (ISAC – CNR)
January 2008 – December 2009 Turin, Italy
Development of a theoretical model for alpine lake ecosystems, in terms of a set of coupled differential equations; running of the model on a computer and matching the results to actual in-situ measurements in twelve lakes in the Valle D’Aosta – Piemonte alpine region

Coordinator of the project ”Physics in everyday life”
Università degli Studi di Torino (together with high schools in the Piemonte area)
2007 Turin Area, Italy

Research Fellow
Università degli Studi del Piemonte Orientale
2006 – 2007 Alessandria, Italy
The classification of non-hermitean random matrices in terms of symmetric spaces

Lagrange Fellow
Institute of Scientific Interchange
2004 – 2006 Turin, Italy
Applications of the theory of symmetric spaces to random matrix models

Research Fellow
Università degli Studi di Torino (Department of Mathematics)
2001 – 2003 Turin, Italy
The theory of symmetric spaces in random matrix models, with applications in condensed matter physics and QCD

Teaching Assistant in mathematics
Università degli Studi di Torino (Department of Mathematics)
2001– 2003 Turin, Italy
Geometry for physics students
Teaching language: Italian

Research Fellow
Università degli Studi di Torino (Department of Theoretical Physics)

2000 – 2001 Turin, Italy

Analytical methods in random matrix theory; techniques deriving from differential geometry

Marie Curie Fellow

INFN (Istituto Nazionale di Fisica Nucleare)

1998 – 2000 Turin, Italy

Applications of random matrix theory in quantum chromodynamics

Nordic Fellow

Nordita

1995 – 1997 Copenhagen, Denmark

Numerical simulations of spin models coupled to quantum gravity

Quantum spectra, random matrix models

Teaching Assistant in experimental physics

Stony Brook University

1988 – 1989 Stony Brook, New York

Laboratory experiments

Teaching language: English

Research Fellow

Academy of Finland

1987 – 1988 Helsinki, Finland

Nuclear physics

Lecturer in theoretical physics

University of Helsinki

1986 – 1988 Helsinki, Finland

Numerical methods

General theory of relativity

Teaching language: Swedish

Research Assistant

University of Helsinki

1986 Helsinki, Finland

Nuclear physics

Substitute teacher in physics

Arcada University of Applied Sciences

1986 Helsinki area, Finland

Atomic physics

Teaching language: Swedish

Research Assistant

Åbo Akademi University

1985 Turku, Finland

Elementary particles and quantum field theory

Teaching Assistant in mathematics

Åbo Akademi University

1984 – 1985 Turku, Finland

Calculus I

Probability theory

Numerical methods

Teaching language: Swedish

VOLUNTEER WORK

Secretary of the Church Committee

International Church of Torino

<http://internationalchurchtorino.com/>

March 2011 – present

Board member

Pro Malax–Petalax Skärgård r.f., Finland (Association for the archipelago)

<https://www.facebook.com/Pro.MalaxPetalax.skargard>

AWARDS

Award of the Sundman foundation for best mathematics student of the university, Åbo Akademi University, Finland, 1984.

RESEARCH GRANTS

Lagrange Fellowship, for research on complex systems, 2004–2006.

Marie Curie Fellowship (EU), for research in random matrix theory, 1998–2000.

Nordic Fellowship, for research in theoretical physics, 1995–1997.

Italian Foreign Ministry Grant, for Ph.D. thesis, 1993–1994.

Academy of Finland Grant, for Ph.D. thesis work in the USA, 1990–1992.

Fulbright Fellowship, for Ph.D. studies in the USA, 1988–1989.

Academy of Finland Fellowship, for research in nuclear physics, 1987–1988.

COMPUTING SKILLS

Operating systems: Working knowledge of Unix/Linux, Macintosh, Microsoft.

Programming languages: Fortran, Object-oriented programming.

Text editors: LaTeX (for mathematical text), Microsoft Word.

Experience: Simulations of spin models on fixed and dynamical lattices using cluster algorithms. Simulations of complex models for ecosystems. Data analysis using interactive language for Unix (GAWK), symbolic manipulation packages (Mathematica, Schoonschip) and graphics packages (Disspla, Gnuplot).

LANGUAGE SKILLS

Swedish excellent (mother tongue)

English excellent in speech and writing

Italian excellent in speech and writing

Finnish fair speech, good reading/writing

German speech to be refreshed, fair reading

Danish fair speech, excellent reading

Norwegian fair speech, excellent reading

LIST OF PUBLICATIONS

All the publications except [19] and [1b] can be found and read online together with their citation indices at the website <http://inspirehep.net/> by typing "find a magnea, u" on the search line.

N.B. The publications precedent to the author's marriage were signed with the maiden name, Blom.

Articles in international refereed journals:

- [1] U. Blom and D. O. Riska, *Nucl. Phys. A* **476** (1988) 603, 21 pp.
“*The isovector exchange magnetic moment in the Skyrme model*”
- [2] U. Blom, K. Dannbom and D. O. Riska, *Nucl. Phys. A* **493** (1989) 384, 18 pp.
“*Hyperons as bound states in the Skyrme model*”
- [3] G. P. Lepage, L. Magnea, C. Nakhleh, U. Magnea and K. Hornbostel, *Phys. Rev. D* **46** (1992) 4052, hep-lat/9205007, 21 pp. *(TOPCITED)
“*Improved nonrelativistic QCD for heavy quark physics*”
- [4] P. Labelle, G. P. Lepage and U. Magnea, *Phys. Rev. Lett.* **72** (1994) 2006, hep-ph/9310208, 7 pp.
“*Order $m\alpha^8$ contributions to the decay rate of orthopositronium*”
- [5] M. Caselle, F. Gliozzi and U. Magnea, *Physica A* **215** (1995) 21, cond-mat/9407012, 23 pp.
“*Fluid interfaces in the 3D Ising model as a dilute gas of handles*”
- [6] U. Magnea, *Ph. D. Thesis*, **UMI-96-16757-mc-fiche** (Aug. 1995), 199 pp.
“*Topics in field theory and statistical mechanics*”
- [7] M. Caselle, F. Gliozzi, U. Magnea and S. Vinti, *Nucl. Phys. B* **460** (1996) 397, hep-lat/9510019, 20 pp.
“*Width of long color flux tubes in lattice gauge systems*”
- [8] J. Ambjørn, K. N. Anagnostopoulos, U. Magnea, and G. Thorleifsson, *Phys. Lett. B* **388** (1996) 713, hep-lat/9606012, 12 pp.
“*Geometrical interpretation of the KPZ exponents*”
- [9] G. Akemann, P. H. Damgaard, U. Magnea, and S. Nishigaki, *Nucl. Phys. B* **487** [FS] (1997) 721, hep-th/9609174, 18 pp. *(TOPCITED)
“*Universality of random matrices in the microscopic limit and the Dirac operator spectrum*”
- [10] J. Ambjørn, K. N. Anagnostopoulos and U. Magnea, *Mod. Phys. Lett. A* **12** (1997) 1605, hep-lat/9705004, 22 pp.
“*Singularities of the partition function for the Ising model coupled to 2d quantum gravity*”
- [11] G. Akemann, P. H. Damgaard, U. Magnea and S. Nishigaki, *Nucl. Phys. B* **519**

- (1998) 682, hep-th/9712006, 28 pp.
“Multicritical microscopic spectral correlators of hermitian and complex matrices”
- [12] U. Magnea, *Phys. Rev. D* **61** (2000) 056005, hep-th/9907096, 17 pp.
“The orthogonal ensemble of random matrices and QCD in three dimensions”
- [13] U. Magnea, *Phys. Rev. D* **62** (2000) 016005, hep-th/9912207, 19 pp.
“Three-dimensional QCD in the adjoint representation and random matrix theory”
- [14] U. Magnea, *Phys. Rev. D* **64** (2001) 018902, hep-th/0009208, 2 pp.
“Reply to Comment on Dirac spectral sum rules for QCD in three dimensions”
- [15] U. Magnea, appeared as Part I of [16], cond-mat/0205288, 66 pp.
“An introduction to symmetric spaces”
- [16] M. Caselle and U. Magnea, *Phys. Rep.* **394** (2004) 41–156, cond-mat/0304363, 136 pp.
“Random matrix theory and symmetric spaces”
- [17] M. Caselle and U. Magnea, *J. Stat. Mech.* (2006) P01013, cond-mat/0506733, 17 pp.
“Symmetric space description of carbon nanotubes”
- [18] U. Magnea, *J. Phys. A: Math. Theor.* **41** (2008) 045203, arXiv:0707.0418, 27 pp.
“Random matrices beyond the Cartan classification”
- [19] U. Magnea, R. Sciascia, F. Paparello, R. Tiberti and A. Provenzale, *Ecological Modelling* **251** (2013) 211 – 220, 10 pp.
“A model for high-altitude alpine lake ecosystems and the effect of introduced fish”

Conference proceedings:

- [1a] M. Caselle, F. Gliozzi, U. Magnea and S. Vinti, *Nucl. Phys. B* **42** (*Proc. Suppl.*) (1995) 222, presented at the *International Symposium of Lattice Field Theory 1994* (Bielefeld, Germany, September 1994), hep-lat/9411060, 3 pp.
“The width of the color flux tube”
- [2a] J. Ambjørn, K. N. Anagnostopoulos, U. Magnea and G. Thorleifsson, *Nucl. Phys. B* **53** (*Proc. Suppl.*) (1997) 725, presented at the *International Symposium of Lattice Field Theory 1996* (St. Louis (MO), USA, June 1996), hep-lat/9608022, 3 pp.

“Spin-spin correlation functions of spin systems coupled to 2-d quantum gravity for $0 < c < 1$ ”

[3a] J. Ambjørn, K. N. Anagnostopoulos and U. Magnea, *Nucl. Phys. B* **63** (*Proc. Suppl.*) (1998) 751, presented at the *International Symposium of Lattice Field Theory 1997* (Edinburgh, Scotland, July 1997), [hep-lat/9708014](#), 3 pp.

“Complex zeros of the partition function for the 2d Ising model on dynamical random lattices”

[4a] U. Magnea, invited lectures presented at the UK–Japan Winter School 2005, “Geometric, Spectral, and Stochastic Analysis” (Evesham, UK, January 2005), published in the *Proceedings of the UK–Japan Winter School 2005 (Keio University)*, [math-ph/0502015](#), 72 pp.

“Lectures on random matrix theory and symmetric spaces”

Other publications:

[1b] Co–revisor of the publication “*Clima, cambiamenti climatici globali e loro impatto sul territorio nazionale*” (ISAC–CNR; ISBN: 978-88-903028-0-0, “*Quaderni dell’ISAC*”, vol. 1).