

International Conference on Nanospintronics Design and Realization ICNDR 2007

May 21st - 25th 2007

Venue: Max-Planck-Institute for Physics of Complex Systems, Dresden, Germany

Abstract:

Spintronics is currently among of the most active research themes in condensed matter physics. This field is progressing very fast and continues branching into increasingly wider areas of condensed matter. The main objective of the Conference on Nanospintronics Design and Realization is to bring together leading scientists in Europe, Japan and the US, being active in different fields of spintronics, also, in state-of-the-art first principles calculations.

Organizers:

*) Stefan Blügel

Institute for Solid State Research (IFF)
Forschungszentrum Jülich GmbH
D-52425 Juelich
Germany
Phone: +49 2461 61 4249
Fax: +49 2461 61 2850
Email: S.Bluegel@fz-juelich.de

*) Patrick Bruno

Theory Department
Max-Planck Institut für Mikrostrukturphysik
Weinberg 2
D-06120 Halle
Tel: +49 345 5582 763
Fax: +49 345 5582 765
Email: bruno@mpi-halle.de

*) Dieter Weiss

Experimentelle und Angewandte Physik
Universität Regensburg
D-93040 Regensburg
Tel: +49 941 943 3197
Fax: +49 941 943 3196
Email: dieter.weiss@physik.uni-regensburg.de

MOTIVATION AND OBJECTIVE:

Spintronics is currently among of the most active research themes in condensed matter physics. The field is progressing very fast and continues branching into an increasingly wider area of condensed matter: these involve the strongly correlated electron systems, the connection to semiconductors in terms of diluted magnetic semiconductors, to organic and inorganic molecules in terms of molecular magnets, to carbon nano-tubes in the field of nanospintronics or even to ferro-electric materials in terms of multiferroics. This is a field where first-principles theory meets transport theory, mesoscopic physics and device oriented concepts. It is thus a field providing a challenge for our community.

The conference is intended to provide an international forum for theoretical and experimental researchers, in the rapidly developing field of nanospintronics. It aims to:

- * provide an overview of our current understanding of the physics of spin transport in (magnetic) semiconductors and hybrid magnetic/semiconductor structures;
- * provide a venue to present and discuss the latest developments in using spin-dependent phenomena in nano-(opto-) electronics and computing applications;
- * provide a venue for discussion and assessment of other possible means of exploiting the spin-dependent phenomena in future nano-(opto-) electronic and computing applications;
- * to address current (and foreseeable future) problems, of fundamental and applied nature, in an effort to bridge the physics and technology gap between semiconducting and magnetic materials.

All of these being geared towards bringing about the realization of a functioning Nanospintronics.

Here we apply to the ESF Psi-k Network for 10.000 Euro to support organizing the International Conference on Nanospintronic Design and Realization 2007, May 21st-25th 2007 at the Max-Planck-Institut for Complex Systems in Dresden (Germany).

This conference is part of the initiative of the working groups Magnetoelectronics and Complex Magnetism of the Psi-k Network to organize within the next years a regular series of conferences and workshops, which started this year with the "Juelich Conference on Computational Magnetism and Spintronics".

TOPICS

A: New Materials (Computational Nano-Materials/Device Design and Fabrication)

- A1. Diluted Magnetic Semiconductors
Curie temperatures, exchange mechanisms, correlation issues,
short range order and segregation, dimensional effects, magnetic anisotropy, etc.
- A2. Halfmetallic Systems
Heusler alloys and other half-metallic systems (e.g. CrAs)
bulk, disorder, interfaces correlated half-metallic systems
(double perovskites, manganites, magnetite)
- A3. Nanomagnets
Magnetic monolayers, wires and clusters on surfaces
Spin and orbital moments, magnetic anisotropies, geometrical
structures, etc.
Magnetic nanocontacts and nanowires
Molecular magnets (Mn₁₂-acetate, Fe₈, V₁₅)
- A4. Ferromagnet-Superconductor Junctions

B: Novel Phenomena

- B1. Spin Injection
Ferromagnet into semiconductor
Diluted magnetic semiconductor into semiconductor
- B2. Spin Coherence and Decoherence
Primarily in semiconductors, but also in metals and ferromagnets.
Decoherence effects (spin-orbit, hyperfine interactions, ...)
- B3. Spin Transport and Manipulation
GMR, TMR, etc. with half-metallic systems
Nano spin electronics (nanocontacts, wires)
Spin manipulation in semiconductors
- B4. Spin-opto electronics
Connection between spin and optoelectronics
- B5. Nanomagnet dynamics and spin dissipation
Spin accumulation
Current-induced switching
Physics of the damping parameter α in Gilbert-Landau-
Lifschitz equations
- B6. Magnetic excitations in nano materials
Spin wave excitations, spin precession
Curie temperatures in low-dimensional systems
Femto- and atto-second dynamics

C: Other topics addressing Nanospintronics Design and Realization

Spin related phenomena in semiconductor heterostructures as well as in bulk semi-conductors
Spin dependent transport
Spin dependent tunneling
Magneto-optical effects
Photo- and field-induced phase transitions
Ferromagnetism and other cooperative phenomena
Spin relaxation, memory and coherence
Spin quantum computing in semiconductors
Materials preparation, properties and device application of:
diluted magnetic semiconductors
magnetic semiconductors
semiconductor/magnetic material hybrid structures
semiconductor nanostructures

Schedule:

We plan with 80 participants: - 30 Invited Speakers

We expect that

- 50 participants come from Europe
- 20 participants come from Japan
- 10 participants come from the US

We plan 30 minutes for every invited talk followed by 10 minutes of discussion, 15 minutes for every contributed talk followed by 5 minutes of discussion one or two poster sessions depending on the demand. In total, we plan 15 sessions over two and a half days.

Funding:

The guest programme of the Max-Planck Institute for Complex Systems covers the accommodation and local costs of 30 participants. It covers the local costs e.g. the conference hall.

In order to support and contribute to the travel and accommodation costs of European scientists of our community, we ask support from the ESF Psi-k Network for 10.000 Euro.

INVITED SPEAKERS from Psi-K Community:

Olle Eriksson (Uppsala) -- Diluted Magnetic Semiconductors
Paul J. Kelly (Twente) -- Spintransport
Josef Kudrnovsky (Prague) -- Diluted Magnetic Semiconductors
Stefano Sanvito (Dublin) -- Molecular transport
Ilja Turek (Bruno) -- Spin-mixing conductance of thin magnetic layers

Guests:

Hisazumi Akai -- Spin-transport in antiferromagnetic
Hiroshi Katayama-Yoshida (Osaka) -- Kombu-phase formation
Tamio Oguchi (Hiroshima) -- Multiferroics
Mark van Schilfgaarde (Tempe) -- Diluted Magnetic Semiconductors

Preliminary List of Speakers.

1. Hisazumi Akai (Osaka Univ.)
2. Gerrit Bauer (Kavli-Institute, Delft)
3. Tomas Dietl (Warsaw)
4. Steven Erwin (NRL, USA)
5. Albert Fert (Univ. Paris-Sud)
6. Olle Eriksson (Uni. Uppsala, Sweden)
7. Tom Foxon (Univ. of Nottingham)
8. Sergey Ganichev (Univ. of Regensburg)
9. Charles Gould (Univ. of Würzburg)
10. E. L. Ivchenko (Ioffe Institute St. Petersburg)
11. Thomas Jungwirth (Prague & Univ. of Nottingham)
12. Yuichiro Kato (UCSB)
13. Daniel Loss (Univ. of Basel)
14. H. Katayama-Yoshida (Osaka Univ.)
15. Shingo Katsumoto (Univ. of Tokyo)
16. Paul Kelly (Univ. of Twente)
17. Leo Kouwenhoven (Kavli-Institute, Delft)
18. Charles Marcus (Harvard University)
19. Laurens Molenkamp (Univ. of Würzburg)
20. Junsako Nitta (Tohoku Univ.)
21. Tamio Oguchi (Uni. Hiroshima)
22. Hideo Ohno (Tohoku Univ.)
23. Dan Ralph (Cornell Univ.)
24. Frederic Petroff (CNRS/Thales)
25. Stefano Sanvito (Dublin, CRAN)
26. Mark van Schilfgaarde (Uni Arizona, Tempe)
27. Ilja Turek (Bruno, Academy of Science)
28. Bart van Wees (Groningen Univ.)
29. Joerg Wunderlich (Hitachi Cambridge)
30. Herre van der Zant (Kavli-Institute, Delft)

CV of Prof. Dr. S. Blügel

Name: Dr. Stefan Blügel

Date of birth: 29/01/1957

Nationality: German

Private address: Am Gut Bau 10, 52052 Aachen

Office address: Forschungszentrum Jülich GmbH, D-52425 Jülich

E-mail: S.Bluegel@fz-juelich.de

Education:

1977-1984, University of Saarbrücken and Rheinisch-Westfälische Technische Hochschule (RWTH) Aachen, Diplom in Physics: 1984

1984-1985, College of William and Mary, Williamsburg, VA, USA

1988, Ph.D. in Physics at RWTH Aachen

1996, Habilitation at RWTH Aachen

Employment:

1984-1988, Research Assistant, Forschungszentrum Jülich

1988-1990, Postdoctoral Fellow, University of Tokyo, Japan

1990-1994, Principal Investigator, Forschungszentrum Jülich

1994-2001, Senior Scientist, Forschungszentrum Jülich

2001-2003, Professor (C3) for Theoretical Physics, University of Osnabrück

2002- Director at the Institute of Solid State Research (IFF), Forschungszentrum Jülich (FZJ),

Department IFF-I: Quantum Theory of Materials

2003- Professor (C4) for Theoretical Physics, University RWTH Aachen

2006 Executive Director of the Department of Solid State Research (IFF),
Forschungszentrum Jülich (FZJ)

Honors:

1983 Springorum Memorial Medal, RWTH Aachen

1984-1985 Scholarship, German Academic Exchange Service (DAAD)

1988-1990 Feodor Lynen Fellowship, Alexander von Humboldt Foundation

1988 Friedrich Wilhelm Prize, RWTH Aachen

1993 Heinz Maier Leibnitz Prize, German Federal Secretary for Research and
Technology

1994 Academy Award, Academy of Sciences of the State North Rhine Westfalia

2001 Offer of Professor (C4) position at University of Kaiserslautern

2002 Offer declined

Diploma:

1984, Diplom in Physics

1988, Ph.D. in Physics at RWTH Aachen

1996, Habilitation at RWTH Aachen

Curriculum Vitae of Patrick Bruno

Personal data

Last name: Bruno
First name: Patrick
Academic title: Prof. Dr.

Birth date and place: 26 May, 1964, in Paris

Citizenship: France



Max Planck Institute of Microstructure Physics
Weinberg 2, D-06120 Halle, Germany

phone (direct): +49 345 5582 763 e-mail: bruno@mpi-halle.de
phone (secretary): +49 345 5582 764 internet: <http://www.mpi-halle.de/~bruno>
fax: +49 345 5582 765

Education

- 1986 - 1989 : Ph.D. Thesis, at the Institut d'Électronique Fondamentale, Université Paris-Sud, Orsay (France);
- 1986 : ``Diplôme d'Études Approfondies" in Solid State Physics, Université Pierre et Marie Curie (Paris, France).
- 1986 : ``Agrégation de Physique" (rank: 1st).
- 1983 - 1987 : Physics Studies in ``École Normale Supérieure" (Saint-Cloud, France) and Université Pierre et Marie Curie (Paris, France).

Positions held

- 2000 – 2001 and since 2006: Managing Director of the Max Planck Institute of Microstructure Physics, Halle (Germany).
- since 1998: Scientific Member and Director at the Max Planck Institute of Microstructure Physics Halle (Germany); Director of the Theory Department.
- 1991 – 1998: CNRS Staff Scientist ("Chargé de Recherche") at the "Institut d'Électronique Fondamentale," University Paris-Sud, Orsay (France).
- 1989 – 1991: Post-doc, University of Regensburg (Germany).

Sabbaticals

- April – June 2005: Invited Professor, École Polytechnique Fédérale de Lausanne.
- August – October 2002: Visiting scientist, Kavli Institute of Theoretical Physics, University of California at Santa Barbara.
- May – November 1997: Visiting scientist, University of Nagoya.

Honors

- 1999: Adjunct Professor of Theoretical Physics at the Martin-Luther University Halle-Wittenberg.
- 1997: Fellowship of the Japan Society for the Promotion of Science.
- 1994: CNRS Bronze Medal.
- 1989: Fellowship of the Alexander von Humboldt Foundation

Research activities:

- since 2005: diabolical points in molecular magnets
- since 2002: Berry phase related phenomena in nanostructures
- since 2001: magnetism of surfaces and nanostructures on surfaces
- 2001 – 2005: magnetic semiconductors
- 2001 – 2002: Magnetic Casimir effect
- since 2000: exchange interactions and Curie temperature in bulk and layered magnetic materials
- since 1999: anomalous Hall effect
- 1999: micromagnetism of nanostructures
- since 1996: spin-electronics
- 1994 – 1998: quantum size effects in magneto-optics
- 1991 – 1997: interlayer exchange coupling
- 1989 – 1992: thermodynamics of two-dimensional ferromagnets
- 1986 – 1991: magnetization reversal processes in ultrathin films
- 1986 – 1991: magnetic anisotropy in ultrathin films

Scientific publications and communications

- 14 review papers and contributions to books;
- 165 original publications in scientific journals, of which 2 papers selected in the "Hot Papers in Physics" of the Institute of Scientific Information (selection of the 10 most cited papers in physics for a period of 2 months). These publications totalize more than 3000 citations, 13 of them exceeding 100 citations.
- 142 invited conferences (of which 3 plenary papers)

Conference organization

- Workshop on Magnetic Nanostructures, Brasilia (Brazil), November 2005 (Director)
- W.E. Heraeus Summerschool on Spin-Electronics, Wittenberg (Germany), August 2005 (Co-Chair)
- Gordon Conference on Magnetic Nanostructures, Big Sky (USA), August 2004 (Chairman).
- Annual Meeting of the EU RTN "Computational Magneto-Electronics", Halle (Germany), October 2003 (Chairman).
- Gordon Conference on Magnetic Nanostructures, Il Ciocco (Italy), May 2002 (Vice-Chairman).
- Symposium on Spin-Electronics (Co-Chair), Halle (Germany), 3–6 July 2000;
- International Advisory Committee of the International Colloquium on Magnetic Films and Surfaces (since 1997);
- Winter school "Nanostructures Magnétiques", Aussois (France), 1995.

CV

Prof. Dr. Dieter Weiss

Professor of Physics
Born 1955

Institute of Experimental
and Applied Physics
University of Regensburg
Universitätsstraße 31
93053 Regensburg

Tel.: ++49 (0)941 943 3197

Fax: ++49 (0)931 943 3196

e-mail: dieter.weiss@physik.uni-regensburg.de

<http://www.physik.uni-regensburg.de/forschung/weiss/>



1982	'Diploma' in Physics at LMU München
1987	'Dr. rer. nat' at TU München with Prof. von Klitzing
1987-1990	Scientific employee at MPI für Festkörperforschung, Stuttgart
1990-1991	Consultant, Bell Communication Research (Bellcore) USA
1991-1995	Scientific employee at MPI für Festkörperforschung, Stuttgart
1993	'Habilitation' at Universität Stuttgart
1993	Otto-Klug-Price for Physics (www.otto-klung-weberbank-preis.de)
Since 1995	Professor of Physics (chair) at the University of Regensburg
1997-2005	Editor of Physica E: Low dimensional systems and nanostructures
09./10. 1998	Guest professor at NTT, Hon-Atsugi, Japan
1999-2001	Dean of the Faculty for Physics, Regensburg University
1999-2006	Spokesperson for DFG-Research Unit FOR 370 "Ferromagnet-semiconductor nanostructures"
Since 2004	Elected Member of the DFG Review Board "Condensed Matter"
Since 2004	Member of the Senate of the University of Regensburg
Since 2004	Member of the Scientific Advisory Board of the "Paul-Drude Institute for Solid State Electronics", Berlin
Since 2005	Spokesperson for DFG Collaborative Research Centre SFB 689 "Spin phenomena in reduced dimensions"

Research interests

Properties of nanopatterned ferromagnets, superconductors and semiconductors, transport in low-dimensional electronic systems (quantum Hall systems, mesoscopic physics), ferromagnet-semiconductor hybrid structures, ferromagnetic semiconductors, spintronics.

International Conference on Nanospintronics Design and Realization ICNDR 2007

May 21st - 25th 2007

Venue: Max-Planck-Institute for Physics of Complex Systems, Dresden, Germany

Abstract:

Spintronics is currently among of the most active research themes in condensed matter physics. This field is progressing very fast and continues branching into increasingly wider areas of condensed matter. The main objective of the Conference on Nanospintronics Design and Realization is to bring together leading scientists in Europe, Japan and the US, being active in different fields of spintronics, also, in state-of-the-art first principles calculations.

Organizers:

*) Stefan Blügel

Institute for Solid State Research (IFF)
Forschungszentrum Jülich GmbH
D-52425 Juelich
Germany
Phone: +49 2461 61 4249
Fax: +49 2461 61 2850
Email: S.Bluegel@fz-juelich.de

*) Patrick Bruno

Theory Department
Max-Planck Institut für Mikrostrukturphysik
Weinberg 2
D-06120 Halle
Tel: +49 345 5582 763
Fax: +49 345 5582 765
Email: bruno@mpi-halle.de

*) Dieter Weiss

Experimentelle und Angewandte Physik
Universität Regensburg
D-93040 Regensburg
Tel: +49 941 943 3197
Fax: +49 941 943 3196
Email: dieter.weiss@physik.uni-regensburg.de

MOTIVATION AND OBJECTIVE:

Spintronics is currently among of the most active research themes in condensed matter physics. The field is progressing very fast and continues branching into an increasingly wider area of condensed matter: these involve the strongly correlated electron systems, the connection to semiconductors in terms of diluted magnetic semiconductors, to organic and inorganic molecules in terms of molecular magnets, to carbon nano-tubes in the field of nanospintronics or even to ferro-electric materials in terms of multiferroics. This is a field where first-principles theory meets transport theory, mesoscopic physics and device oriented concepts. It is thus a field providing a challenge for our community.

The conference is intended to provide an international forum for theoretical and experimental researchers, in the rapidly developing field of nanospintronics. It aims to:

- * provide an overview of our current understanding of the physics of spin transport in (magnetic) semiconductors and hybrid magnetic/semiconductor structures;
- * provide a venue to present and discuss the latest developments in using spin-dependent phenomena in nano-(opto-) electronics and computing applications;
- * provide a venue for discussion and assessment of other possible means of exploiting the spin-dependent phenomena in future nano-(opto-) electronic and computing applications;
- * to address current (and foreseeable future) problems, of fundamental and applied nature, in an effort to bridge the physics and technology gap between semiconducting and magnetic materials.

All of these being geared towards bringing about the realization of a functioning Nanospintronics.

Here we apply to the ESF Psi-k Network for 10.000 Euro to support organizing the International Conference on Nanospintronic Design and Realization 2007, May 21st-25th 2007 at the Max-Planck-Institut for Complex Systems in Dresden (Germany).

This conference is part of the initiative of the working groups Magnetoelectronics and Complex Magnetism of the Psi-k Network to organize within the next years a regular series of conferences and workshops, which started this year with the "Juelich Conference on Computational Magnetism and Spintronics".

TOPICS

A: New Materials (Computational Nano-Materials/Device Design and Fabrication)

- A1. Diluted Magnetic Semiconductors
Curie temperatures, exchange mechanisms, correlation issues,
short range order and segregation, dimensional effects, magnetic anisotropy, etc.
- A2. Halfmetallic Systems
Heusler alloys and other half-metallic systems (e.g. CrAs)
bulk, disorder, interfaces correlated half-metallic systems
(double perovskites, manganites, magnetite)
- A3. Nanomagnets
Magnetic monolayers, wires and clusters on surfaces
Spin and orbital moments, magnetic anisotropies, geometrical
structures, etc.
Magnetic nanocontacts and nanowires
Molecular magnets (Mn₁₂-acetate, Fe₈, V₁₅)
- A4. Ferromagnet-Superconductor Junctions

B: Novel Phenomena

- B1. Spin Injection
Ferromagnet into semiconductor
Diluted magnetic semiconductor into semiconductor
- B2. Spin Coherence and Decoherence
Primarily in semiconductors, but also in metals and ferromagnets.
Decoherence effects (spin-orbit, hyperfine interactions, ...)
- B3. Spin Transport and Manipulation
GMR, TMR, etc. with half-metallic systems
Nano spin electronics (nanocontacts, wires)
Spin manipulation in semiconductors
- B4. Spin-opto electronics
Connection between spin and optoelectronics
- B5. Nanomagnet dynamics and spin dissipation
Spin accumulation
Current-induced switching
Physics of the damping parameter α in Gilbert-Landau-
Lifschitz equations
- B6. Magnetic excitations in nano materials
Spin wave excitations, spin precession
Curie temperatures in low-dimensional systems
Femto- and atto-second dynamics

C: Other topics addressing Nanospintronics Design and Realization

Spin related phenomena in semiconductor heterostructures as well as in bulk semi-conductors

Spin dependent transport

Spin dependent tunneling

Magneto-optical effects

Photo- and field-induced phase transitions

Ferromagnetism and other cooperative phenomena

Spin relaxation, memory and coherence

Spin quantum computing in semiconductors

Materials preparation, properties and device application of:

diluted magnetic semiconductors

magnetic semiconductors

semiconductor/magnetic material hybrid structures

semiconductor nanostructures

Schedule:

We plan with 80 participants: - 30 Invited Speakers

We expect that

- 50 participants come from Europe

- 20 participants come from Japan

- 10 participants come from the US

We plan 30 minutes for every invited talk followed by 10 minutes of discussion, 15 minutes for every contributed talk followed by 5 minutes of discussion one or two poster sessions depending on the demand. In total, we plan 15 sessions over two and a half days.

Funding:

The guest programme of the Max-Planck Institute for Complex Systems covers the accommodation and local costs of 30 participants. It covers the local costs e.g. the conference hall.

In order to support and contribute to the travel and accommodation costs of European scientists of our community, we ask support from the ESF Psi-k Network for 10.000 Euro.

INVITED SPEAKERS from Psi-K Community:

Olle Eriksson (Uppsala) -- Diluted Magnetic Semiconductors
Paul J. Kelly (Twente) -- Spintransport
Josef Kudrnovsky (Prague) -- Diluted Magnetic Semiconductors
Stefano Sanvito (Dublin) -- Molecular transport
Ilja Turek (Bruno) -- Spin-mixing conductance of thin magnetic layers

Guests:

Hisazumi Akai -- Spin-transport in antiferromagnetic
Hiroshi Katayama-Yoshida (Osaka) -- Kombu-phase formation
Tamio Oguchi (Hiroshima) -- Multiferroics
Mark van Schilfgaarde (Tempe) -- Diluted Magnetic Semiconductors

Preliminary List of Speakers.

1. Hisazumi Akai (Osaka Univ.)
2. Gerrit Bauer (Kavli-Institute, Delft)
3. Tomas Dietl (Warsaw)
4. Steven Erwin (NRL, USA)
5. Albert Fert (Univ. Paris-Sud)
6. Olle Eriksson (Uni. Uppsala, Sweden)
7. Tom Foxon (Univ. of Nottingham)
8. Sergey Ganichev (Univ. of Regensburg)
9. Charles Gould (Univ. of Würzburg)
10. E. L. Ivchenko (Ioffe Institute St. Petersburg)
11. Thomas Jungwirth (Prague & Univ. of Nottingham)
12. Yuichiro Kato (UCSB)
13. Daniel Loss (Univ. of Basel)
14. H. Katayama-Yoshida (Osaka Univ.)
15. Shingo Katsumoto (Univ. of Tokyo)
16. Paul Kelly (Univ. of Twente)
17. Leo Kouwenhoven (Kavli-Institute, Delft)
18. Charles Marcus (Harvard University)
19. Laurens Molenkamp (Univ. of Würzburg)
20. Junsako Nitta (Tohoku Univ.)
21. Tamio Oguchi (Uni. Hiroshima)
22. Hideo Ohno (Tohoku Univ.)
23. Dan Ralph (Cornell Univ.)
24. Frederic Petroff (CNRS/Thales)
25. Stefano Sanvito (Dublin, CRAN)
26. Mark van Schilfgaarde (Uni Arizona, Tempe)
27. Ilja Turek (Bruno, Academy of Science)
28. Bart van Wees (Groningen Univ.)
29. Joerg Wunderlich (Hitachi Cambridge)
30. Herre van der Zant (Kavli-Institute, Delft)

CV of Prof. Dr. S. Blügel

Name: Dr. Stefan Blügel

Date of birth: 29/01/1957

Nationality: German

Private address: Am Gut Bau 10, 52052 Aachen

Office address: Forschungszentrum Jülich GmbH, D-52425 Jülich

E-mail: S.Bluegel@fz-juelich.de

Education:

1977-1984, University of Saarbrücken and Rheinisch-Westfälische Technische Hochschule (RWTH) Aachen, Diplom in Physics: 1984

1984-1985, College of William and Mary, Williamsburg, VA, USA

1988, Ph.D. in Physics at RWTH Aachen

1996, Habilitation at RWTH Aachen

Employment:

1984-1988, Research Assistant, Forschungszentrum Jülich

1988-1990, Postdoctoral Fellow, University of Tokyo, Japan

1990-1994, Principal Investigator, Forschungszentrum Jülich

1994-2001, Senior Scientist, Forschungszentrum Jülich

2001-2003, Professor (C3) for Theoretical Physics, University of Osnabrück

2002- Director at the Institute of Solid State Research (IFF), Forschungszentrum Jülich (FZJ),

Department IFF-I: Quantum Theory of Materials

2003- Professor (C4) for Theoretical Physics, University RWTH Aachen

2006 Executive Director of the Department of Solid State Research (IFF),
Forschungszentrum Jülich (FZJ)

Honors:

1983 Springorum Memorial Medal, RWTH Aachen

1984-1985 Scholarship, German Academic Exchange Service (DAAD)

1988-1990 Feodor Lynen Fellowship, Alexander von Humboldt Foundation

1988 Friedrich Wilhelm Prize, RWTH Aachen

1993 Heinz Maier Leibnitz Prize, German Federal Secretary for Research and
Technology

1994 Academy Award, Academy of Sciences of the State North Rhine Westfalia

2001 Offer of Professor (C4) position at University of Kaiserslautern

2002 Offer declined

Diploma:

1984, Diplom in Physics

1988, Ph.D. in Physics at RWTH Aachen

1996, Habilitation at RWTH Aachen

Curriculum Vitae of Patrick Bruno

Personal data

Last name: Bruno
First name: Patrick
Academic title: Prof. Dr.

Birth date and place: 26 May, 1964, in Paris

Citizenship: France



Max Planck Institute of Microstructure Physics
Weinberg 2, D-06120 Halle, Germany

phone (direct): +49 345 5582 763 e-mail: bruno@mpi-halle.de
phone (secretary): +49 345 5582 764 internet: <http://www.mpi-halle.de/~bruno>
fax: +49 345 5582 765

Education

- 1986 - 1989 : Ph.D. Thesis, at the Institut d'Électronique Fondamentale, Université Paris-Sud, Orsay (France);
- 1986 : ``Diplôme d'Études Approfondies" in Solid State Physics, Université Pierre et Marie Curie (Paris, France).
- 1986 : ``Agrégation de Physique" (rank: 1st).
- 1983 - 1987 : Physics Studies in ``École Normale Supérieure" (Saint-Cloud, France) and Université Pierre et Marie Curie (Paris, France).

Positions held

- 2000 – 2001 and since 2006: Managing Director of the Max Planck Institute of Microstructure Physics, Halle (Germany).
- since 1998: Scientific Member and Director at the Max Planck Institute of Microstructure Physics Halle (Germany); Director of the Theory Department.
- 1991 – 1998: CNRS Staff Scientist ("Chargé de Recherche") at the "Institut d'Électronique Fondamentale," University Paris-Sud, Orsay (France).
- 1989 – 1991: Post-doc, University of Regensburg (Germany).

Sabbaticals

- April – June 2005: Invited Professor, École Polytechnique Fédérale de Lausanne.
- August – October 2002: Visiting scientist, Kavli Institute of Theoretical Physics, University of California at Santa Barbara.
- May – November 1997: Visiting scientist, University of Nagoya.

Honors

- 1999: Adjunct Professor of Theoretical Physics at the Martin-Luther University Halle-Wittenberg.
- 1997: Fellowship of the Japan Society for the Promotion of Science.
- 1994: CNRS Bronze Medal.
- 1989: Fellowship of the Alexander von Humboldt Foundation

Research activities:

- since 2005: diabolical points in molecular magnets
- since 2002: Berry phase related phenomena in nanostructures
- since 2001: magnetism of surfaces and nanostructures on surfaces
- 2001 – 2005: magnetic semiconductors
- 2001 – 2002: Magnetic Casimir effect
- since 2000: exchange interactions and Curie temperature in bulk and layered magnetic materials
- since 1999: anomalous Hall effect
- 1999: micromagnetism of nanostructures
- since 1996: spin-electronics
- 1994 – 1998: quantum size effects in magneto-optics
- 1991 – 1997: interlayer exchange coupling
- 1989 – 1992: thermodynamics of two-dimensional ferromagnets
- 1986 – 1991: magnetization reversal processes in ultrathin films
- 1986 – 1991: magnetic anisotropy in ultrathin films

Scientific publications and communications

- 14 review papers and contributions to books;
- 165 original publications in scientific journals, of which 2 papers selected in the "Hot Papers in Physics" of the Institute of Scientific Information (selection of the 10 most cited papers in physics for a period of 2 months). These publications totalize more than 3000 citations, 13 of them exceeding 100 citations.
- 142 invited conferences (of which 3 plenary papers)

Conference organization

- Workshop on Magnetic Nanostructures, Brasilia (Brazil), November 2005 (Director)
- W.E. Heraeus Summerschool on Spin-Electronics, Wittenberg (Germany), August 2005 (Co-Chair)
- Gordon Conference on Magnetic Nanostructures, Big Sky (USA), August 2004 (Chairman).
- Annual Meeting of the EU RTN "Computational Magneto-Electronics", Halle (Germany), October 2003 (Chairman).
- Gordon Conference on Magnetic Nanostructures, Il Ciocco (Italy), May 2002 (Vice-Chairman).
- Symposium on Spin-Electronics (Co-Chair), Halle (Germany), 3–6 July 2000;
- International Advisory Committee of the International Colloquium on Magnetic Films and Surfaces (since 1997);
- Winter school "Nanostructures Magnétiques", Aussois (France), 1995.

CV

Prof. Dr. Dieter Weiss

Professor of Physics
Born 1955

Institute of Experimental
and Applied Physics
University of Regensburg
Universitätsstraße 31
93053 Regensburg

Tel.: ++49 (0)941 943 3197

Fax: ++49 (0)931 943 3196

e-mail: dieter.weiss@physik.uni-regensburg.de

<http://www.physik.uni-regensburg.de/forschung/weiss/>



1982	'Diploma' in Physics at LMU München
1987	'Dr. rer. nat' at TU München with Prof. von Klitzing
1987-1990	Scientific employee at MPI für Festkörperforschung, Stuttgart
1990-1991	Consultant, Bell Communication Research (Bellcore) USA
1991-1995	Scientific employee at MPI für Festkörperforschung, Stuttgart
1993	'Habilitation' at Universität Stuttgart
1993	Otto-Klug-Price for Physics (www.otto-klung-weberbank-preis.de)
Since 1995	Professor of Physics (chair) at the University of Regensburg
1997-2005	Editor of Physica E: Low dimensional systems and nanostructures
09./10. 1998	Guest professor at NTT, Hon-Atsugi, Japan
1999-2001	Dean of the Faculty for Physics, Regensburg University
1999-2006	Spokesperson for DFG-Research Unit FOR 370 "Ferromagnet-semiconductor nanostructures"
Since 2004	Elected Member of the DFG Review Board "Condensed Matter"
Since 2004	Member of the Senate of the University of Regensburg
Since 2004	Member of the Scientific Advisory Board of the "Paul-Drude Institute for Solid State Electronics", Berlin
Since 2005	Spokesperson for DFG Collaborative Research Centre SFB 689 "Spin phenomena in reduced dimensions"

Research interests

Properties of nanopatterned ferromagnets, superconductors and semiconductors, transport in low-dimensional electronic systems (quantum Hall systems, mesoscopic physics), ferromagnet-semiconductor hybrid structures, ferromagnetic semiconductors, spintronics.

International Conference on Nanospintronics Design and Realization ICNDR 2007

May 21st - 25th 2007

Venue: Max-Planck-Institute for Physics of Complex Systems, Dresden, Germany

Abstract:

Spintronics is currently among of the most active research themes in condensed matter physics. This field is progressing very fast and continues branching into increasingly wider areas of condensed matter. The main objective of the Conference on Nanospintronics Design and Realization is to bring together leading scientists in Europe, Japan and the US, being active in different fields of spintronics, also, in state-of-the-art first principles calculations.

Organizers:

*) Stefan Blügel

Institute for Solid State Research (IFF)
Forschungszentrum Jülich GmbH
D-52425 Juelich
Germany
Phone: +49 2461 61 4249
Fax: +49 2461 61 2850
Email: S.Bluegel@fz-juelich.de

*) Patrick Bruno

Theory Department
Max-Planck Institut für Mikrostrukturphysik
Weinberg 2
D-06120 Halle
Tel: +49 345 5582 763
Fax: +49 345 5582 765
Email: bruno@mpi-halle.de

*) Dieter Weiss

Experimentelle und Angewandte Physik
Universität Regensburg
D-93040 Regensburg
Tel: +49 941 943 3197
Fax: +49 941 943 3196
Email: dieter.weiss@physik.uni-regensburg.de

MOTIVATION AND OBJECTIVE:

Spintronics is currently among of the most active research themes in condensed matter physics. The field is progressing very fast and continues branching into an increasingly wider area of condensed matter: these involve the strongly correlated electron systems, the connection to semiconductors in terms of diluted magnetic semiconductors, to organic and inorganic molecules in terms of molecular magnets, to carbon nano-tubes in the field of nanospintronics or even to ferro-electric materials in terms of multiferroics. This is a field where first-principles theory meets transport theory, mesoscopic physics and device oriented concepts. It is thus a field providing a challenge for our community.

The conference is intended to provide an international forum for theoretical and experimental researchers, in the rapidly developing field of nanospintronics. It aims to:

- * provide an overview of our current understanding of the physics of spin transport in (magnetic) semiconductors and hybrid magnetic/semiconductor structures;
- * provide a venue to present and discuss the latest developments in using spin-dependent phenomena in nano-(opto-) electronics and computing applications;
- * provide a venue for discussion and assessment of other possible means of exploiting the spin-dependent phenomena in future nano-(opto-) electronic and computing applications;
- * to address current (and foreseeable future) problems, of fundamental and applied nature, in an effort to bridge the physics and technology gap between semiconducting and magnetic materials.

All of these being geared towards bringing about the realization of a functioning Nanospintronics.

Here we apply to the ESF Psi-k Network for 10.000 Euro to support organizing the International Conference on Nanospintronic Design and Realization 2007, May 21st-25th 2007 at the Max-Planck-Institut for Complex Systems in Dresden (Germany).

This conference is part of the initiative of the working groups Magnetoelectronics and Complex Magnetism of the Psi-k Network to organize within the next years a regular series of conferences and workshops, which started this year with the "Juelich Conference on Computational Magnetism and Spintronics".

TOPICS

A: New Materials (Computational Nano-Materials/Device Design and Fabrication)

- A1. Diluted Magnetic Semiconductors
Curie temperatures, exchange mechanisms, correlation issues,
short range order and segregation, dimensional effects, magnetic anisotropy, etc.
- A2. Halfmetallic Systems
Heusler alloys and other half-metallic systems (e.g. CrAs)
bulk, disorder, interfaces correlated half-metallic systems
(double perovskites, manganites, magnetite)
- A3. Nanomagnets
Magnetic monolayers, wires and clusters on surfaces
Spin and orbital moments, magnetic anisotropies, geometrical
structures, etc.
Magnetic nanocontacts and nanowires
Molecular magnets (Mn₁₂-acetate, Fe₈, V₁₅)
- A4. Ferromagnet-Superconductor Junctions

B: Novel Phenomena

- B1. Spin Injection
Ferromagnet into semiconductor
Diluted magnetic semiconductor into semiconductor
- B2. Spin Coherence and Decoherence
Primarily in semiconductors, but also in metals and ferromagnets.
Decoherence effects (spin-orbit, hyperfine interactions, ...)
- B3. Spin Transport and Manipulation
GMR, TMR, etc. with half-metallic systems
Nano spin electronics (nanocontacts, wires)
Spin manipulation in semiconductors
- B4. Spin-opto electronics
Connection between spin and optoelectronics
- B5. Nanomagnet dynamics and spin dissipation
Spin accumulation
Current-induced switching
Physics of the damping parameter α in Gilbert-Landau-
Lifschitz equations
- B6. Magnetic excitations in nano materials
Spin wave excitations, spin precession
Curie temperatures in low-dimensional systems
Femto- and atto-second dynamics

C: Other topics addressing Nanospintronics Design and Realization

Spin related phenomena in semiconductor heterostructures as well as in bulk semi-conductors

Spin dependent transport

Spin dependent tunneling

Magneto-optical effects

Photo- and field-induced phase transitions

Ferromagnetism and other cooperative phenomena

Spin relaxation, memory and coherence

Spin quantum computing in semiconductors

Materials preparation, properties and device application of:

diluted magnetic semiconductors

magnetic semiconductors

semiconductor/magnetic material hybrid structures

semiconductor nanostructures

Schedule:

We plan with 80 participants: - 30 Invited Speakers

We expect that

- 50 participants come from Europe

- 20 participants come from Japan

- 10 participants come from the US

We plan 30 minutes for every invited talk followed by 10 minutes of discussion, 15 minutes for every contributed talk followed by 5 minutes of discussion one or two poster sessions depending on the demand. In total, we plan 15 sessions over two and a half days.

Funding:

The guest programme of the Max-Planck Institute for Complex Systems covers the accommodation and local costs of 30 participants. It covers the local costs e.g. the conference hall.

In order to support and contribute to the travel and accommodation costs of European scientists of our community, we ask support from the ESF Psi-k Network for 10.000 Euro.

INVITED SPEAKERS from Psi-K Community:

Olle Eriksson (Uppsala) -- Diluted Magnetic Semiconductors
Paul J. Kelly (Twente) -- Spintransport
Josef Kudrnovsky (Prague) -- Diluted Magnetic Semiconductors
Stefano Sanvito (Dublin) -- Molecular transport
Ilja Turek (Bruno) -- Spin-mixing conductance of thin magnetic layers

Guests:

Hisazumi Akai -- Spin-transport in antiferromagnetic
Hiroshi Katayama-Yoshida (Osaka) -- Kombu-phase formation
Tamio Oguchi (Hiroshima) -- Multiferroics
Mark van Schilfgaarde (Tempe) -- Diluted Magnetic Semiconductors

Preliminary List of Speakers.

1. Hisazumi Akai (Osaka Univ.)
2. Gerrit Bauer (Kavli-Institute, Delft)
3. Tomas Dietl (Warsaw)
4. Steven Erwin (NRL, USA)
5. Albert Fert (Univ. Paris-Sud)
6. Olle Eriksson (Uni. Uppsala, Sweden)
7. Tom Foxon (Univ. of Nottingham)
8. Sergey Ganichev (Univ. of Regensburg)
9. Charles Gould (Univ. of Würzburg)
10. E. L. Ivchenko (Ioffe Institute St. Petersburg)
11. Thomas Jungwirth (Prague & Univ. of Nottingham)
12. Yuichiro Kato (UCSB)
13. Daniel Loss (Univ. of Basel)
14. H. Katayama-Yoshida (Osaka Univ.)
15. Shingo Katsumoto (Univ. of Tokyo)
16. Paul Kelly (Univ. of Twente)
17. Leo Kouwenhoven (Kavli-Institute, Delft)
18. Charles Marcus (Harvard University)
19. Laurens Molenkamp (Univ. of Würzburg)
20. Junsako Nitta (Tohoku Univ.)
21. Tamio Oguchi (Uni. Hiroshima)
22. Hideo Ohno (Tohoku Univ.)
23. Dan Ralph (Cornell Univ.)
24. Frederic Petroff (CNRS/Thales)
25. Stefano Sanvito (Dublin, CRAN)
26. Mark van Schilfgaarde (Uni Arizona, Tempe)
27. Ilja Turek (Bruno, Academy of Science)
28. Bart van Wees (Groningen Univ.)
29. Joerg Wunderlich (Hitachi Cambridge)
30. Herre van der Zant (Kavli-Institute, Delft)

CV of Prof. Dr. S. Blügel

Name: Dr. Stefan Blügel

Date of birth: 29/01/1957

Nationality: German

Private address: Am Gut Bau 10, 52052 Aachen

Office address: Forschungszentrum Jülich GmbH, D-52425 Jülich

E-mail: S.Bluegel@fz-juelich.de

Education:

1977-1984, University of Saarbrücken and Rheinisch-Westfälische Technische Hochschule (RWTH) Aachen, Diplom in Physics: 1984

1984-1985, College of William and Mary, Williamsburg, VA, USA

1988, Ph.D. in Physics at RWTH Aachen

1996, Habilitation at RWTH Aachen

Employment:

1984-1988, Research Assistant, Forschungszentrum Jülich

1988-1990, Postdoctoral Fellow, University of Tokyo, Japan

1990-1994, Principal Investigator, Forschungszentrum Jülich

1994-2001, Senior Scientist, Forschungszentrum Jülich

2001-2003, Professor (C3) for Theoretical Physics, University of Osnabrück

2002- Director at the Institute of Solid State Research (IFF), Forschungszentrum Jülich (FZJ),

Department IFF-I: Quantum Theory of Materials

2003- Professor (C4) for Theoretical Physics, University RWTH Aachen

2006 Executive Director of the Department of Solid State Research (IFF),
Forschungszentrum Jülich (FZJ)

Honors:

1983 Springorum Memorial Medal, RWTH Aachen

1984-1985 Scholarship, German Academic Exchange Service (DAAD)

1988-1990 Feodor Lynen Fellowship, Alexander von Humboldt Foundation

1988 Friedrich Wilhelm Prize, RWTH Aachen

1993 Heinz Maier Leibnitz Prize, German Federal Secretary for Research and
Technology

1994 Academy Award, Academy of Sciences of the State North Rhine Westfalia

2001 Offer of Professor (C4) position at University of Kaiserslautern

2002 Offer declined

Diploma:

1984, Diplom in Physics

1988, Ph.D. in Physics at RWTH Aachen

1996, Habilitation at RWTH Aachen

Curriculum Vitae of Patrick Bruno

Personal data

Last name: Bruno
First name: Patrick
Academic title: Prof. Dr.

Birth date and place: 26 May, 1964, in Paris

Citizenship: France



Max Planck Institute of Microstructure Physics
Weinberg 2, D-06120 Halle, Germany

phone (direct): +49 345 5582 763 e-mail: bruno@mpi-halle.de
phone (secretary): +49 345 5582 764 internet: <http://www.mpi-halle.de/~bruno>
fax: +49 345 5582 765

Education

- 1986 - 1989 : Ph.D. Thesis, at the Institut d'Électronique Fondamentale, Université Paris-Sud, Orsay (France);
- 1986 : ``Diplôme d'Études Approfondies" in Solid State Physics, Université Pierre et Marie Curie (Paris, France).
- 1986 : ``Agrégation de Physique" (rank: 1st).
- 1983 - 1987 : Physics Studies in ``École Normale Supérieure" (Saint-Cloud, France) and Université Pierre et Marie Curie (Paris, France).

Positions held

- 2000 – 2001 and since 2006: Managing Director of the Max Planck Institute of Microstructure Physics, Halle (Germany).
- since 1998: Scientific Member and Director at the Max Planck Institute of Microstructure Physics Halle (Germany); Director of the Theory Department.
- 1991 – 1998: CNRS Staff Scientist ("Chargé de Recherche") at the "Institut d'Électronique Fondamentale," University Paris-Sud, Orsay (France).
- 1989 – 1991: Post-doc, University of Regensburg (Germany).

Sabbaticals

- April – June 2005: Invited Professor, École Polytechnique Fédérale de Lausanne.
- August – October 2002: Visiting scientist, Kavli Institute of Theoretical Physics, University of California at Santa Barbara.
- May – November 1997: Visiting scientist, University of Nagoya.

Honors

- 1999: Adjunct Professor of Theoretical Physics at the Martin-Luther University Halle-Wittenberg.
- 1997: Fellowship of the Japan Society for the Promotion of Science.
- 1994: CNRS Bronze Medal.
- 1989: Fellowship of the Alexander von Humboldt Foundation

Research activities:

- since 2005: diabolical points in molecular magnets
- since 2002: Berry phase related phenomena in nanostructures
- since 2001: magnetism of surfaces and nanostructures on surfaces
- 2001 – 2005: magnetic semiconductors
- 2001 – 2002: Magnetic Casimir effect
- since 2000: exchange interactions and Curie temperature in bulk and layered magnetic materials
- since 1999: anomalous Hall effect
- 1999: micromagnetism of nanostructures
- since 1996: spin-electronics
- 1994 – 1998: quantum size effects in magneto-optics
- 1991 – 1997: interlayer exchange coupling
- 1989 – 1992: thermodynamics of two-dimensional ferromagnets
- 1986 – 1991: magnetization reversal processes in ultrathin films
- 1986 – 1991: magnetic anisotropy in ultrathin films

Scientific publications and communications

- 14 review papers and contributions to books;
- 165 original publications in scientific journals, of which 2 papers selected in the "Hot Papers in Physics" of the Institute of Scientific Information (selection of the 10 most cited papers in physics for a period of 2 months). These publications totalize more than 3000 citations, 13 of them exceeding 100 citations.
- 142 invited conferences (of which 3 plenary papers)

Conference organization

- Workshop on Magnetic Nanostructures, Brasilia (Brazil), November 2005 (Director)
- W.E. Heraeus Summerschool on Spin-Electronics, Wittenberg (Germany), August 2005 (Co-Chair)
- Gordon Conference on Magnetic Nanostructures, Big Sky (USA), August 2004 (Chairman).
- Annual Meeting of the EU RTN "Computational Magneto-Electronics", Halle (Germany), October 2003 (Chairman).
- Gordon Conference on Magnetic Nanostructures, Il Ciocco (Italy), May 2002 (Vice-Chairman).
- Symposium on Spin-Electronics (Co-Chair), Halle (Germany), 3–6 July 2000;
- International Advisory Committee of the International Colloquium on Magnetic Films and Surfaces (since 1997);
- Winter school "Nanostructures Magnétiques", Aussois (France), 1995.

CV

Prof. Dr. Dieter Weiss

Professor of Physics
Born 1955

Institute of Experimental
and Applied Physics
University of Regensburg
Universitätsstraße 31
93053 Regensburg

Tel.: ++49 (0)941 943 3197

Fax: ++49 (0)931 943 3196

e-mail: dieter.weiss@physik.uni-regensburg.de

<http://www.physik.uni-regensburg.de/forschung/weiss/>



1982	'Diploma' in Physics at LMU München
1987	'Dr. rer. nat' at TU München with Prof. von Klitzing
1987-1990	Scientific employee at MPI für Festkörperforschung, Stuttgart
1990-1991	Consultant, Bell Communication Research (Bellcore) USA
1991-1995	Scientific employee at MPI für Festkörperforschung, Stuttgart
1993	'Habilitation' at Universität Stuttgart
1993	Otto-Klug-Price for Physics (www.otto-klung-weberbank-preis.de)
Since 1995	Professor of Physics (chair) at the University of Regensburg
1997-2005	Editor of Physica E: Low dimensional systems and nanostructures
09./10. 1998	Guest professor at NTT, Hon-Atsugi, Japan
1999-2001	Dean of the Faculty for Physics, Regensburg University
1999-2006	Spokesperson for DFG-Research Unit FOR 370 "Ferromagnet-semiconductor nanostructures"
Since 2004	Elected Member of the DFG Review Board "Condensed Matter"
Since 2004	Member of the Senate of the University of Regensburg
Since 2004	Member of the Scientific Advisory Board of the "Paul-Drude Institute for Solid State Electronics", Berlin
Since 2005	Spokesperson for DFG Collaborative Research Centre SFB 689 "Spin phenomena in reduced dimensions"

Research interests

Properties of nanopatterned ferromagnets, superconductors and semiconductors, transport in low-dimensional electronic systems (quantum Hall systems, mesoscopic physics), ferromagnet-semiconductor hybrid structures, ferromagnetic semiconductors, spintronics.

International Conference on Nanospintronics Design and Realization ICNDR 2007

May 21st - 25th 2007

Venue: Max-Planck-Institute for Physics of Complex Systems, Dresden, Germany

Abstract:

Spintronics is currently among of the most active research themes in condensed matter physics. This field is progressing very fast and continues branching into increasingly wider areas of condensed matter. The main objective of the Conference on Nanospintronics Design and Realization is to bring together leading scientists in Europe, Japan and the US, being active in different fields of spintronics, also, in state-of-the-art first principles calculations.

Organizers:

*) Stefan Blügel

Institute for Solid State Research (IFF)
Forschungszentrum Jülich GmbH
D-52425 Juelich
Germany
Phone: +49 2461 61 4249
Fax: +49 2461 61 2850
Email: S.Bluegel@fz-juelich.de

*) Patrick Bruno

Theory Department
Max-Planck Institut für Mikrostrukturphysik
Weinberg 2
D-06120 Halle
Tel: +49 345 5582 763
Fax: +49 345 5582 765
Email: bruno@mpi-halle.de

*) Dieter Weiss

Experimentelle und Angewandte Physik
Universität Regensburg
D-93040 Regensburg
Tel: +49 941 943 3197
Fax: +49 941 943 3196
Email: dieter.weiss@physik.uni-regensburg.de

MOTIVATION AND OBJECTIVE:

Spintronics is currently among of the most active research themes in condensed matter physics. The field is progressing very fast and continues branching into an increasingly wider area of condensed matter: these involve the strongly correlated electron systems, the connection to semiconductors in terms of diluted magnetic semiconductors, to organic and inorganic molecules in terms of molecular magnets, to carbon nano-tubes in the field of nanospintronics or even to ferro-electric materials in terms of multiferroics. This is a field where first-principles theory meets transport theory, mesoscopic physics and device oriented concepts. It is thus a field providing a challenge for our community.

The conference is intended to provide an international forum for theoretical and experimental researchers, in the rapidly developing field of nanospintronics. It aims to:

- * provide an overview of our current understanding of the physics of spin transport in (magnetic) semiconductors and hybrid magnetic/semiconductor structures;
- * provide a venue to present and discuss the latest developments in using spin-dependent phenomena in nano-(opto-) electronics and computing applications;
- * provide a venue for discussion and assessment of other possible means of exploiting the spin-dependent phenomena in future nano-(opto-) electronic and computing applications;
- * to address current (and foreseeable future) problems, of fundamental and applied nature, in an effort to bridge the physics and technology gap between semiconducting and magnetic materials.

All of these being geared towards bringing about the realization of a functioning Nanospintronics.

Here we apply to the ESF Psi-k Network for 10.000 Euro to support organizing the International Conference on Nanospintronic Design and Realization 2007, May 21st-25th 2007 at the Max-Planck-Institut for Complex Systems in Dresden (Germany).

This conference is part of the initiative of the working groups Magnetoelectronics and Complex Magnetism of the Psi-k Network to organize within the next years a regular series of conferences and workshops, which started this year with the "Juelich Conference on Computational Magnetism and Spintronics".

TOPICS

A: New Materials (Computational Nano-Materials/Device Design and Fabrication)

- A1. Diluted Magnetic Semiconductors
Curie temperatures, exchange mechanisms, correlation issues,
short range order and segregation, dimensional effects, magnetic anisotropy, etc.
- A2. Halfmetallic Systems
Heusler alloys and other half-metallic systems (e.g. CrAs)
bulk, disorder, interfaces correlated half-metallic systems
(double perovskites, manganites, magnetite)
- A3. Nanomagnets
Magnetic monolayers, wires and clusters on surfaces
Spin and orbital moments, magnetic anisotropies, geometrical
structures, etc.
Magnetic nanocontacts and nanowires
Molecular magnets (Mn₁₂-acetate, Fe₈, V₁₅)
- A4. Ferromagnet-Superconductor Junctions

B: Novel Phenomena

- B1. Spin Injection
Ferromagnet into semiconductor
Diluted magnetic semiconductor into semiconductor
- B2. Spin Coherence and Decoherence
Primarily in semiconductors, but also in metals and ferromagnets.
Decoherence effects (spin-orbit, hyperfine interactions, ...)
- B3. Spin Transport and Manipulation
GMR, TMR, etc. with half-metallic systems
Nano spin electronics (nanocontacts, wires)
Spin manipulation in semiconductors
- B4. Spin-opto electronics
Connection between spin and optoelectronics
- B5. Nanomagnet dynamics and spin dissipation
Spin accumulation
Current-induced switching
Physics of the damping parameter α in Gilbert-Landau-
Lifschitz equations
- B6. Magnetic excitations in nano materials
Spin wave excitations, spin precession
Curie temperatures in low-dimensional systems
Femto- and atto-second dynamics

C: Other topics addressing Nanospintronics Design and Realization

Spin related phenomena in semiconductor heterostructures as well as in bulk semi-conductors
Spin dependent transport
Spin dependent tunneling
Magneto-optical effects
Photo- and field-induced phase transitions
Ferromagnetism and other cooperative phenomena
Spin relaxation, memory and coherence
Spin quantum computing in semiconductors
Materials preparation, properties and device application of:
diluted magnetic semiconductors
magnetic semiconductors
semiconductor/magnetic material hybrid structures
semiconductor nanostructures

Schedule:

We plan with 80 participants: - 30 Invited Speakers

We expect that

- 50 participants come from Europe
- 20 participants come from Japan
- 10 participants come from the US

We plan 30 minutes for every invited talk followed by 10 minutes of discussion, 15 minutes for every contributed talk followed by 5 minutes of discussion one or two poster sessions depending on the demand. In total, we plan 15 sessions over two and a half days.

Funding:

The guest programme of the Max-Planck Institute for Complex Systems covers the accommodation and local costs of 30 participants. It covers the local costs e.g. the conference hall.

In order to support and contribute to the travel and accommodation costs of European scientists of our community, we ask support from the ESF Psi-k Network for 10.000 Euro.

INVITED SPEAKERS from Psi-K Community:

Olle Eriksson (Uppsala) -- Diluted Magnetic Semiconductors
Paul J. Kelly (Twente) -- Spintransport
Josef Kudrnovsky (Prague) -- Diluted Magnetic Semiconductors
Stefano Sanvito (Dublin) -- Molecular transport
Ilja Turek (Bruno) -- Spin-mixing conductance of thin magnetic layers

Guests:

Hisazumi Akai -- Spin-transport in antiferromagnetic
Hiroshi Katayama-Yoshida (Osaka) -- Kombu-phase formation
Tamio Oguchi (Hiroshima) -- Multiferroics
Mark van Schilfgaarde (Tempe) -- Diluted Magnetic Semiconductors

Preliminary List of Speakers.

1. Hisazumi Akai (Osaka Univ.)
2. Gerrit Bauer (Kavli-Institute, Delft)
3. Tomas Dietl (Warsaw)
4. Steven Erwin (NRL, USA)
5. Albert Fert (Univ. Paris-Sud)
6. Olle Eriksson (Uni. Uppsala, Sweden)
7. Tom Foxon (Univ. of Nottingham)
8. Sergey Ganichev (Univ. of Regensburg)
9. Charles Gould (Univ. of Würzburg)
10. E. L. Ivchenko (Ioffe Institute St. Petersburg)
11. Thomas Jungwirth (Prague & Univ. of Nottingham)
12. Yuichiro Kato (UCSB)
13. Daniel Loss (Univ. of Basel)
14. H. Katayama-Yoshida (Osaka Univ.)
15. Shingo Katsumoto (Univ. of Tokyo)
16. Paul Kelly (Univ. of Twente)
17. Leo Kouwenhoven (Kavli-Institute, Delft)
18. Charles Marcus (Harvard University)
19. Laurens Molenkamp (Univ. of Würzburg)
20. Junsako Nitta (Tohoku Univ.)
21. Tamio Oguchi (Uni. Hiroshima)
22. Hideo Ohno (Tohoku Univ.)
23. Dan Ralph (Cornell Univ.)
24. Frederic Petroff (CNRS/Thales)
25. Stefano Sanvito (Dublin, CRAN)
26. Mark van Schilfgaarde (Uni Arizona, Tempe)
27. Ilja Turek (Bruno, Academy of Science)
28. Bart van Wees (Groningen Univ.)
29. Joerg Wunderlich (Hitachi Cambridge)
30. Herre van der Zant (Kavli-Institute, Delft)

CV of Prof. Dr. S. Blügel

Name: Dr. Stefan Blügel

Date of birth: 29/01/1957

Nationality: German

Private address: Am Gut Bau 10, 52052 Aachen

Office address: Forschungszentrum Jülich GmbH, D-52425 Jülich

E-mail: S.Bluegel@fz-juelich.de

Education:

1977-1984, University of Saarbrücken and Rheinisch-Westfälische Technische Hochschule (RWTH) Aachen, Diplom in Physics: 1984

1984-1985, College of William and Mary, Williamsburg, VA, USA

1988, Ph.D. in Physics at RWTH Aachen

1996, Habilitation at RWTH Aachen

Employment:

1984-1988, Research Assistant, Forschungszentrum Jülich

1988-1990, Postdoctoral Fellow, University of Tokyo, Japan

1990-1994, Principal Investigator, Forschungszentrum Jülich

1994-2001, Senior Scientist, Forschungszentrum Jülich

2001-2003, Professor (C3) for Theoretical Physics, University of Osnabrück

2002- Director at the Institute of Solid State Research (IFF), Forschungszentrum Jülich (FZJ),

Department IFF-I: Quantum Theory of Materials

2003- Professor (C4) for Theoretical Physics, University RWTH Aachen

2006 Executive Director of the Department of Solid State Research (IFF),
Forschungszentrum Jülich (FZJ)

Honors:

1983 Springorum Memorial Medal, RWTH Aachen

1984-1985 Scholarship, German Academic Exchange Service (DAAD)

1988-1990 Feodor Lynen Fellowship, Alexander von Humboldt Foundation

1988 Friedrich Wilhelm Prize, RWTH Aachen

1993 Heinz Maier Leibnitz Prize, German Federal Secretary for Research and
Technology

1994 Academy Award, Academy of Sciences of the State North Rhine Westfalia

2001 Offer of Professor (C4) position at University of Kaiserslautern

2002 Offer declined

Diploma:

1984, Diplom in Physics

1988, Ph.D. in Physics at RWTH Aachen

1996, Habilitation at RWTH Aachen

Curriculum Vitae of Patrick Bruno

Personal data

Last name: Bruno
First name: Patrick
Academic title: Prof. Dr.

Birth date and place: 26 May, 1964, in Paris

Citizenship: France



Max Planck Institute of Microstructure Physics
Weinberg 2, D-06120 Halle, Germany

phone (direct): +49 345 5582 763 e-mail: bruno@mpi-halle.de
phone (secretary): +49 345 5582 764 internet: <http://www.mpi-halle.de/~bruno>
fax: +49 345 5582 765

Education

- 1986 - 1989 : Ph.D. Thesis, at the Institut d'Électronique Fondamentale, Université Paris-Sud, Orsay (France);
- 1986 : ``Diplôme d'Études Approfondies" in Solid State Physics, Université Pierre et Marie Curie (Paris, France).
- 1986 : ``Agrégation de Physique" (rank: 1st).
- 1983 - 1987 : Physics Studies in ``École Normale Supérieure" (Saint-Cloud, France) and Université Pierre et Marie Curie (Paris, France).

Positions held

- 2000 – 2001 and since 2006: Managing Director of the Max Planck Institute of Microstructure Physics, Halle (Germany).
- since 1998: Scientific Member and Director at the Max Planck Institute of Microstructure Physics Halle (Germany); Director of the Theory Department.
- 1991 – 1998: CNRS Staff Scientist ("Chargé de Recherche") at the "Institut d'Électronique Fondamentale," University Paris-Sud, Orsay (France).
- 1989 – 1991: Post-doc, University of Regensburg (Germany).

Sabbaticals

- April – June 2005: Invited Professor, École Polytechnique Fédérale de Lausanne.
- August – October 2002: Visiting scientist, Kavli Institute of Theoretical Physics, University of California at Santa Barbara.
- May – November 1997: Visiting scientist, University of Nagoya.

Honors

- 1999: Adjunct Professor of Theoretical Physics at the Martin-Luther University Halle-Wittenberg.
- 1997: Fellowship of the Japan Society for the Promotion of Science.
- 1994: CNRS Bronze Medal.
- 1989: Fellowship of the Alexander von Humboldt Foundation

Research activities:

- since 2005: diabolical points in molecular magnets
- since 2002: Berry phase related phenomena in nanostructures
- since 2001: magnetism of surfaces and nanostructures on surfaces
- 2001 – 2005: magnetic semiconductors
- 2001 – 2002: Magnetic Casimir effect
- since 2000: exchange interactions and Curie temperature in bulk and layered magnetic materials
- since 1999: anomalous Hall effect
- 1999: micromagnetism of nanostructures
- since 1996: spin-electronics
- 1994 – 1998: quantum size effects in magneto-optics
- 1991 – 1997: interlayer exchange coupling
- 1989 – 1992: thermodynamics of two-dimensional ferromagnets
- 1986 – 1991: magnetization reversal processes in ultrathin films
- 1986 – 1991: magnetic anisotropy in ultrathin films

Scientific publications and communications

- 14 review papers and contributions to books;
- 165 original publications in scientific journals, of which 2 papers selected in the "Hot Papers in Physics" of the Institute of Scientific Information (selection of the 10 most cited papers in physics for a period of 2 months). These publications totalize more than 3000 citations, 13 of them exceeding 100 citations.
- 142 invited conferences (of which 3 plenary papers)

Conference organization

- Workshop on Magnetic Nanostructures, Brasilia (Brazil), November 2005 (Director)
- W.E. Heraeus Summerschool on Spin-Electronics, Wittenberg (Germany), August 2005 (Co-Chair)
- Gordon Conference on Magnetic Nanostructures, Big Sky (USA), August 2004 (Chairman).
- Annual Meeting of the EU RTN "Computational Magneto-Electronics", Halle (Germany), October 2003 (Chairman).
- Gordon Conference on Magnetic Nanostructures, Il Ciocco (Italy), May 2002 (Vice-Chairman).
- Symposium on Spin-Electronics (Co-Chair), Halle (Germany), 3–6 July 2000;
- International Advisory Committee of the International Colloquium on Magnetic Films and Surfaces (since 1997);
- Winter school "Nanostructures Magnétiques", Aussois (France), 1995.

CV

Prof. Dr. Dieter Weiss

Professor of Physics
Born 1955

Institute of Experimental
and Applied Physics
University of Regensburg
Universitätsstraße 31
93053 Regensburg

Tel.: ++49 (0)941 943 3197

Fax: ++49 (0)931 943 3196

e-mail: dieter.weiss@physik.uni-regensburg.de

<http://www.physik.uni-regensburg.de/forschung/weiss/>



1982	'Diploma' in Physics at LMU München
1987	'Dr. rer. nat' at TU München with Prof. von Klitzing
1987-1990	Scientific employee at MPI für Festkörperforschung, Stuttgart
1990-1991	Consultant, Bell Communication Research (Bellcore) USA
1991-1995	Scientific employee at MPI für Festkörperforschung, Stuttgart
1993	'Habilitation' at Universität Stuttgart
1993	Otto-Klug-Price for Physics (www.otto-klung-weberbank-preis.de)
Since 1995	Professor of Physics (chair) at the University of Regensburg
1997-2005	Editor of Physica E: Low dimensional systems and nanostructures
09./10. 1998	Guest professor at NTT, Hon-Atsugi, Japan
1999-2001	Dean of the Faculty for Physics, Regensburg University
1999-2006	Spokesperson for DFG-Research Unit FOR 370 "Ferromagnet-semiconductor nanostructures"
Since 2004	Elected Member of the DFG Review Board "Condensed Matter"
Since 2004	Member of the Senate of the University of Regensburg
Since 2004	Member of the Scientific Advisory Board of the "Paul-Drude Institute for Solid State Electronics", Berlin
Since 2005	Spokesperson for DFG Collaborative Research Centre SFB 689 "Spin phenomena in reduced dimensions"

Research interests

Properties of nanopatterned ferromagnets, superconductors and semiconductors, transport in low-dimensional electronic systems (quantum Hall systems, mesoscopic physics), ferromagnet-semiconductor hybrid structures, ferromagnetic semiconductors, spintronics.

International Conference on Nanospintronics Design and Realization ICNDR 2007

May 21st - 25th 2007

Venue: Max-Planck-Institute for Physics of Complex Systems, Dresden, Germany

Abstract:

Spintronics is currently among of the most active research themes in condensed matter physics. This field is progressing very fast and continues branching into increasingly wider areas of condensed matter. The main objective of the Conference on Nanospintronics Design and Realization is to bring together leading scientists in Europe, Japan and the US, being active in different fields of spintronics, also, in state-of-the-art first principles calculations.

Organizers:

*) Stefan Blügel

Institute for Solid State Research (IFF)
Forschungszentrum Jülich GmbH
D-52425 Juelich
Germany
Phone: +49 2461 61 4249
Fax: +49 2461 61 2850
Email: S.Bluegel@fz-juelich.de

*) Patrick Bruno

Theory Department
Max-Planck Institut für Mikrostrukturphysik
Weinberg 2
D-06120 Halle
Tel: +49 345 5582 763
Fax: +49 345 5582 765
Email: bruno@mpi-halle.de

*) Dieter Weiss

Experimentelle und Angewandte Physik
Universität Regensburg
D-93040 Regensburg
Tel: +49 941 943 3197
Fax: +49 941 943 3196
Email: dieter.weiss@physik.uni-regensburg.de

MOTIVATION AND OBJECTIVE:

Spintronics is currently among of the most active research themes in condensed matter physics. The field is progressing very fast and continues branching into an increasingly wider area of condensed matter: these involve the strongly correlated electron systems, the connection to semiconductors in terms of diluted magnetic semiconductors, to organic and inorganic molecules in terms of molecular magnets, to carbon nano-tubes in the field of nanospintronics or even to ferro-electric materials in terms of multiferroics. This is a field where first-principles theory meets transport theory, mesoscopic physics and device oriented concepts. It is thus a field providing a challenge for our community.

The conference is intended to provide an international forum for theoretical and experimental researchers, in the rapidly developing field of nanospintronics. It aims to:

- * provide an overview of our current understanding of the physics of spin transport in (magnetic) semiconductors and hybrid magnetic/semiconductor structures;
- * provide a venue to present and discuss the latest developments in using spin-dependent phenomena in nano-(opto-) electronics and computing applications;
- * provide a venue for discussion and assessment of other possible means of exploiting the spin-dependent phenomena in future nano-(opto-) electronic and computing applications;
- * to address current (and foreseeable future) problems, of fundamental and applied nature, in an effort to bridge the physics and technology gap between semiconducting and magnetic materials.

All of these being geared towards bringing about the realization of a functioning Nanospintronics.

Here we apply to the ESF Psi-k Network for 10.000 Euro to support organizing the International Conference on Nanospintronic Design and Realization 2007, May 21st-25th 2007 at the Max-Planck-Institut for Complex Systems in Dresden (Germany).

This conference is part of the initiative of the working groups Magnetoelectronics and Complex Magnetism of the Psi-k Network to organize within the next years a regular series of conferences and workshops, which started this year with the "Juelich Conference on Computational Magnetism and Spintronics".

TOPICS

A: New Materials (Computational Nano-Materials/Device Design and Fabrication)

- A1. Diluted Magnetic Semiconductors
Curie temperatures, exchange mechanisms, correlation issues,
short range order and segregation, dimensional effects, magnetic anisotropy, etc.
- A2. Halfmetallic Systems
Heusler alloys and other half-metallic systems (e.g. CrAs)
bulk, disorder, interfaces correlated half-metallic systems
(double perovskites, manganites, magnetite)
- A3. Nanomagnets
Magnetic monolayers, wires and clusters on surfaces
Spin and orbital moments, magnetic anisotropies, geometrical
structures, etc.
Magnetic nanocontacts and nanowires
Molecular magnets (Mn₁₂-acetate, Fe₈, V₁₅)
- A4. Ferromagnet-Superconductor Junctions

B: Novel Phenomena

- B1. Spin Injection
Ferromagnet into semiconductor
Diluted magnetic semiconductor into semiconductor
- B2. Spin Coherence and Decoherence
Primarily in semiconductors, but also in metals and ferromagnets.
Decoherence effects (spin-orbit, hyperfine interactions, ...)
- B3. Spin Transport and Manipulation
GMR, TMR, etc. with half-metallic systems
Nano spin electronics (nanocontacts, wires)
Spin manipulation in semiconductors
- B4. Spin-opto electronics
Connection between spin and optoelectronics
- B5. Nanomagnet dynamics and spin dissipation
Spin accumulation
Current-induced switching
Physics of the damping parameter α in Gilbert-Landau-
Lifschitz equations
- B6. Magnetic excitations in nano materials
Spin wave excitations, spin precession
Curie temperatures in low-dimensional systems
Femto- and atto-second dynamics

C: Other topics addressing Nanospintronics Design and Realization

Spin related phenomena in semiconductor heterostructures as well as in bulk semi-conductors

Spin dependent transport

Spin dependent tunneling

Magneto-optical effects

Photo- and field-induced phase transitions

Ferromagnetism and other cooperative phenomena

Spin relaxation, memory and coherence

Spin quantum computing in semiconductors

Materials preparation, properties and device application of:

diluted magnetic semiconductors

magnetic semiconductors

semiconductor/magnetic material hybrid structures

semiconductor nanostructures

Schedule:

We plan with 80 participants: - 30 Invited Speakers

We expect that

- 50 participants come from Europe

- 20 participants come from Japan

- 10 participants come from the US

We plan 30 minutes for every invited talk followed by 10 minutes of discussion, 15 minutes for every contributed talk followed by 5 minutes of discussion one or two poster sessions depending on the demand. In total, we plan 15 sessions over two and a half days.

Funding:

The guest programme of the Max-Planck Institute for Complex Systems covers the accommodation and local costs of 30 participants. It covers the local costs e.g. the conference hall.

In order to support and contribute to the travel and accommodation costs of European scientists of our community, we ask support from the ESF Psi-k Network for 10.000 Euro.

INVITED SPEAKERS from Psi-K Community:

Olle Eriksson (Uppsala) -- Diluted Magnetic Semiconductors
Paul J. Kelly (Twente) -- Spintransport
Josef Kudrnovsky (Prague) -- Diluted Magnetic Semiconductors
Stefano Sanvito (Dublin) -- Molecular transport
Ilja Turek (Bruno) -- Spin-mixing conductance of thin magnetic layers

Guests:

Hisazumi Akai -- Spin-transport in antiferromagnetic
Hiroshi Katayama-Yoshida (Osaka) -- Kombu-phase formation
Tamio Oguchi (Hiroshima) -- Multiferroics
Mark van Schilfgaarde (Tempe) -- Diluted Magnetic Semiconductors

Preliminary List of Speakers.

1. Hisazumi Akai (Osaka Univ.)
2. Gerrit Bauer (Kavli-Institute, Delft)
3. Tomas Dietl (Warsaw)
4. Steven Erwin (NRL, USA)
5. Albert Fert (Univ. Paris-Sud)
6. Olle Eriksson (Uni. Uppsala, Sweden)
7. Tom Foxon (Univ. of Nottingham)
8. Sergey Ganichev (Univ. of Regensburg)
9. Charles Gould (Univ. of Würzburg)
10. E. L. Ivchenko (Ioffe Institute St. Petersburg)
11. Thomas Jungwirth (Prague & Univ. of Nottingham)
12. Yuichiro Kato (UCSB)
13. Daniel Loss (Univ. of Basel)
14. H. Katayama-Yoshida (Osaka Univ.)
15. Shingo Katsumoto (Univ. of Tokyo)
16. Paul Kelly (Univ. of Twente)
17. Leo Kouwenhoven (Kavli-Institute, Delft)
18. Charles Marcus (Harvard University)
19. Laurens Molenkamp (Univ. of Würzburg)
20. Junsako Nitta (Tohoku Univ.)
21. Tamio Oguchi (Uni. Hiroshima)
22. Hideo Ohno (Tohoku Univ.)
23. Dan Ralph (Cornell Univ.)
24. Frederic Petroff (CNRS/Thales)
25. Stefano Sanvito (Dublin, CRAN)
26. Mark van Schilfgaarde (Uni Arizona, Tempe)
27. Ilja Turek (Bruno, Academy of Science)
28. Bart van Wees (Groningen Univ.)
29. Joerg Wunderlich (Hitachi Cambridge)
30. Herre van der Zant (Kavli-Institute, Delft)

CV of Prof. Dr. S. Blügel

Name: Dr. Stefan Blügel

Date of birth: 29/01/1957

Nationality: German

Private address: Am Gut Bau 10, 52052 Aachen

Office address: Forschungszentrum Jülich GmbH, D-52425 Jülich

E-mail: S.Bluegel@fz-juelich.de

Education:

1977-1984, University of Saarbrücken and Rheinisch-Westfälische Technische Hochschule (RWTH) Aachen, Diplom in Physics: 1984

1984-1985, College of William and Mary, Williamsburg, VA, USA

1988, Ph.D. in Physics at RWTH Aachen

1996, Habilitation at RWTH Aachen

Employment:

1984-1988, Research Assistant, Forschungszentrum Jülich

1988-1990, Postdoctoral Fellow, University of Tokyo, Japan

1990-1994, Principal Investigator, Forschungszentrum Jülich

1994-2001, Senior Scientist, Forschungszentrum Jülich

2001-2003, Professor (C3) for Theoretical Physics, University of Osnabrück

2002- Director at the Institute of Solid State Research (IFF), Forschungszentrum Jülich (FZJ),

Department IFF-I: Quantum Theory of Materials

2003- Professor (C4) for Theoretical Physics, University RWTH Aachen

2006 Executive Director of the Department of Solid State Research (IFF),
Forschungszentrum Jülich (FZJ)

Honors:

1983 Springorum Memorial Medal, RWTH Aachen

1984-1985 Scholarship, German Academic Exchange Service (DAAD)

1988-1990 Feodor Lynen Fellowship, Alexander von Humboldt Foundation

1988 Friedrich Wilhelm Prize, RWTH Aachen

1993 Heinz Maier Leibnitz Prize, German Federal Secretary for Research and
Technology

1994 Academy Award, Academy of Sciences of the State North Rhine Westfalia

2001 Offer of Professor (C4) position at University of Kaiserslautern

2002 Offer declined

Diploma:

1984, Diplom in Physics

1988, Ph.D. in Physics at RWTH Aachen

1996, Habilitation at RWTH Aachen

Curriculum Vitae of Patrick Bruno

Personal data

Last name: Bruno
First name: Patrick
Academic title: Prof. Dr.

Birth date and place: 26 May, 1964, in Paris

Citizenship: France



Max Planck Institute of Microstructure Physics
Weinberg 2, D-06120 Halle, Germany

phone (direct): +49 345 5582 763 e-mail: bruno@mpi-halle.de
phone (secretary): +49 345 5582 764 internet: <http://www.mpi-halle.de/~bruno>
fax: +49 345 5582 765

Education

- 1986 - 1989 : Ph.D. Thesis, at the Institut d'Électronique Fondamentale, Université Paris-Sud, Orsay (France);
- 1986 : ``Diplôme d'Études Approfondies" in Solid State Physics, Université Pierre et Marie Curie (Paris, France).
- 1986 : ``Agrégation de Physique" (rank: 1st).
- 1983 - 1987 : Physics Studies in ``École Normale Supérieure" (Saint-Cloud, France) and Université Pierre et Marie Curie (Paris, France).

Positions held

- 2000 – 2001 and since 2006: Managing Director of the Max Planck Institute of Microstructure Physics, Halle (Germany).
- since 1998: Scientific Member and Director at the Max Planck Institute of Microstructure Physics Halle (Germany); Director of the Theory Department.
- 1991 – 1998: CNRS Staff Scientist ("Chargé de Recherche") at the "Institut d'Électronique Fondamentale," University Paris-Sud, Orsay (France).
- 1989 – 1991: Post-doc, University of Regensburg (Germany).

Sabbaticals

- April – June 2005: Invited Professor, École Polytechnique Fédérale de Lausanne.
- August – October 2002: Visiting scientist, Kavli Institute of Theoretical Physics, University of California at Santa Barbara.
- May – November 1997: Visiting scientist, University of Nagoya.

Honors

- 1999: Adjunct Professor of Theoretical Physics at the Martin-Luther University Halle-Wittenberg.
- 1997: Fellowship of the Japan Society for the Promotion of Science.
- 1994: CNRS Bronze Medal.
- 1989: Fellowship of the Alexander von Humboldt Foundation

Research activities:

- since 2005: diabolical points in molecular magnets
- since 2002: Berry phase related phenomena in nanostructures
- since 2001: magnetism of surfaces and nanostructures on surfaces
- 2001 – 2005: magnetic semiconductors
- 2001 – 2002: Magnetic Casimir effect
- since 2000: exchange interactions and Curie temperature in bulk and layered magnetic materials
- since 1999: anomalous Hall effect
- 1999: micromagnetism of nanostructures
- since 1996: spin-electronics
- 1994 – 1998: quantum size effects in magneto-optics
- 1991 – 1997: interlayer exchange coupling
- 1989 – 1992: thermodynamics of two-dimensional ferromagnets
- 1986 – 1991: magnetization reversal processes in ultrathin films
- 1986 – 1991: magnetic anisotropy in ultrathin films

Scientific publications and communications

- 14 review papers and contributions to books;
- 165 original publications in scientific journals, of which 2 papers selected in the "Hot Papers in Physics" of the Institute of Scientific Information (selection of the 10 most cited papers in physics for a period of 2 months). These publications totalize more than 3000 citations, 13 of them exceeding 100 citations.
- 142 invited conferences (of which 3 plenary papers)

Conference organization

- Workshop on Magnetic Nanostructures, Brasilia (Brazil), November 2005 (Director)
- W.E. Heraeus Summerschool on Spin-Electronics, Wittenberg (Germany), August 2005 (Co-Chair)
- Gordon Conference on Magnetic Nanostructures, Big Sky (USA), August 2004 (Chairman).
- Annual Meeting of the EU RTN "Computational Magneto-Electronics", Halle (Germany), October 2003 (Chairman).
- Gordon Conference on Magnetic Nanostructures, Il Ciocco (Italy), May 2002 (Vice-Chairman).
- Symposium on Spin-Electronics (Co-Chair), Halle (Germany), 3–6 July 2000;
- International Advisory Committee of the International Colloquium on Magnetic Films and Surfaces (since 1997);
- Winter school "Nanostructures Magnétiques", Aussois (France), 1995.

CV

Prof. Dr. Dieter Weiss

Professor of Physics
Born 1955

Institute of Experimental
and Applied Physics
University of Regensburg
Universitätsstraße 31
93053 Regensburg

Tel.: ++49 (0)941 943 3197

Fax: ++49 (0)931 943 3196

e-mail: dieter.weiss@physik.uni-regensburg.de

<http://www.physik.uni-regensburg.de/forschung/weiss/>



1982	'Diploma' in Physics at LMU München
1987	'Dr. rer. nat' at TU München with Prof. von Klitzing
1987-1990	Scientific employee at MPI für Festkörperforschung, Stuttgart
1990-1991	Consultant, Bell Communication Research (Bellcore) USA
1991-1995	Scientific employee at MPI für Festkörperforschung, Stuttgart
1993	'Habilitation' at Universität Stuttgart
1993	Otto-Klug-Price for Physics (www.otto-klung-weberbank-preis.de)
Since 1995	Professor of Physics (chair) at the University of Regensburg
1997-2005	Editor of Physica E: Low dimensional systems and nanostructures
09./10. 1998	Guest professor at NTT, Hon-Atsugi, Japan
1999-2001	Dean of the Faculty for Physics, Regensburg University
1999-2006	Spokesperson for DFG-Research Unit FOR 370 "Ferromagnet-semiconductor nanostructures"
Since 2004	Elected Member of the DFG Review Board "Condensed Matter"
Since 2004	Member of the Senate of the University of Regensburg
Since 2004	Member of the Scientific Advisory Board of the "Paul-Drude Institute for Solid State Electronics", Berlin
Since 2005	Spokesperson for DFG Collaborative Research Centre SFB 689 "Spin phenomena in reduced dimensions"

Research interests

Properties of nanopatterned ferromagnets, superconductors and semiconductors, transport in low-dimensional electronic systems (quantum Hall systems, mesoscopic physics), ferromagnet-semiconductor hybrid structures, ferromagnetic semiconductors, spintronics.

International Conference on Nanospintronics Design and Realization ICNDR 2007

May 21st - 25th 2007

Venue: Max-Planck-Institute for Physics of Complex Systems, Dresden, Germany

Abstract:

Spintronics is currently among of the most active research themes in condensed matter physics. This field is progressing very fast and continues branching into increasingly wider areas of condensed matter. The main objective of the Conference on Nanospintronics Design and Realization is to bring together leading scientists in Europe, Japan and the US, being active in different fields of spintronics, also, in state-of-the-art first principles calculations.

Organizers:

*) Stefan Blügel

Institute for Solid State Research (IFF)
Forschungszentrum Jülich GmbH
D-52425 Juelich
Germany
Phone: +49 2461 61 4249
Fax: +49 2461 61 2850
Email: S.Bluegel@fz-juelich.de

*) Patrick Bruno

Theory Department
Max-Planck Institut für Mikrostrukturphysik
Weinberg 2
D-06120 Halle
Tel: +49 345 5582 763
Fax: +49 345 5582 765
Email: bruno@mpi-halle.de

*) Dieter Weiss

Experimentelle und Angewandte Physik
Universität Regensburg
D-93040 Regensburg
Tel: +49 941 943 3197
Fax: +49 941 943 3196
Email: dieter.weiss@physik.uni-regensburg.de

MOTIVATION AND OBJECTIVE:

Spintronics is currently among of the most active research themes in condensed matter physics. The field is progressing very fast and continues branching into an increasingly wider area of condensed matter: these involve the strongly correlated electron systems, the connection to semiconductors in terms of diluted magnetic semiconductors, to organic and inorganic molecules in terms of molecular magnets, to carbon nano-tubes in the field of nanospintronics or even to ferro-electric materials in terms of multiferroics. This is a field where first-principles theory meets transport theory, mesoscopic physics and device oriented concepts. It is thus a field providing a challenge for our community.

The conference is intended to provide an international forum for theoretical and experimental researchers, in the rapidly developing field of nanospintronics. It aims to:

- * provide an overview of our current understanding of the physics of spin transport in (magnetic) semiconductors and hybrid magnetic/semiconductor structures;
- * provide a venue to present and discuss the latest developments in using spin-dependent phenomena in nano-(opto-) electronics and computing applications;
- * provide a venue for discussion and assessment of other possible means of exploiting the spin-dependent phenomena in future nano-(opto-) electronic and computing applications;
- * to address current (and foreseeable future) problems, of fundamental and applied nature, in an effort to bridge the physics and technology gap between semiconducting and magnetic materials.

All of these being geared towards bringing about the realization of a functioning Nanospintronics.

Here we apply to the ESF Psi-k Network for 10.000 Euro to support organizing the International Conference on Nanospintronic Design and Realization 2007, May 21st-25th 2007 at the Max-Planck-Institut for Complex Systems in Dresden (Germany).

This conference is part of the initiative of the working groups Magnetoelectronics and Complex Magnetism of the Psi-k Network to organize within the next years a regular series of conferences and workshops, which started this year with the "Juelich Conference on Computational Magnetism and Spintronics".

TOPICS

A: New Materials (Computational Nano-Materials/Device Design and Fabrication)

- A1. Diluted Magnetic Semiconductors
Curie temperatures, exchange mechanisms, correlation issues,
short range order and segregation, dimensional effects, magnetic anisotropy, etc.
- A2. Halfmetallic Systems
Heusler alloys and other half-metallic systems (e.g. CrAs)
bulk, disorder, interfaces correlated half-metallic systems
(double perovskites, manganites, magnetite)
- A3. Nanomagnets
Magnetic monolayers, wires and clusters on surfaces
Spin and orbital moments, magnetic anisotropies, geometrical
structures, etc.
Magnetic nanocontacts and nanowires
Molecular magnets (Mn₁₂-acetate, Fe₈, V₁₅)
- A4. Ferromagnet-Superconductor Junctions

B: Novel Phenomena

- B1. Spin Injection
Ferromagnet into semiconductor
Diluted magnetic semiconductor into semiconductor
- B2. Spin Coherence and Decoherence
Primarily in semiconductors, but also in metals and ferromagnets.
Decoherence effects (spin-orbit, hyperfine interactions, ...)
- B3. Spin Transport and Manipulation
GMR, TMR, etc. with half-metallic systems
Nano spin electronics (nanocontacts, wires)
Spin manipulation in semiconductors
- B4. Spin-opto electronics
Connection between spin and optoelectronics
- B5. Nanomagnet dynamics and spin dissipation
Spin accumulation
Current-induced switching
Physics of the damping parameter α in Gilbert-Landau-
Lifschitz equations
- B6. Magnetic excitations in nano materials
Spin wave excitations, spin precession
Curie temperatures in low-dimensional systems
Femto- and atto-second dynamics

C: Other topics addressing Nanospintronics Design and Realization

Spin related phenomena in semiconductor heterostructures as well as in bulk semi-conductors

Spin dependent transport

Spin dependent tunneling

Magneto-optical effects

Photo- and field-induced phase transitions

Ferromagnetism and other cooperative phenomena

Spin relaxation, memory and coherence

Spin quantum computing in semiconductors

Materials preparation, properties and device application of:

diluted magnetic semiconductors

magnetic semiconductors

semiconductor/magnetic material hybrid structures

semiconductor nanostructures

Schedule:

We plan with 80 participants: - 30 Invited Speakers

We expect that

- 50 participants come from Europe

- 20 participants come from Japan

- 10 participants come from the US

We plan 30 minutes for every invited talk followed by 10 minutes of discussion, 15 minutes for every contributed talk followed by 5 minutes of discussion one or two poster sessions depending on the demand. In total, we plan 15 sessions over two and a half days.

Funding:

The guest programme of the Max-Planck Institute for Complex Systems covers the accommodation and local costs of 30 participants. It covers the local costs e.g. the conference hall.

In order to support and contribute to the travel and accommodation costs of European scientists of our community, we ask support from the ESF Psi-k Network for 10.000 Euro.

INVITED SPEAKERS from Psi-K Community:

Olle Eriksson (Uppsala) -- Diluted Magnetic Semiconductors
Paul J. Kelly (Twente) -- Spintransport
Josef Kudrnovsky (Prague) -- Diluted Magnetic Semiconductors
Stefano Sanvito (Dublin) -- Molecular transport
Ilja Turek (Bruno) -- Spin-mixing conductance of thin magnetic layers

Guests:

Hisazumi Akai -- Spin-transport in antiferromagnetic
Hiroshi Katayama-Yoshida (Osaka) -- Kombu-phase formation
Tamio Oguchi (Hiroshima) -- Multiferroics
Mark van Schilfgaarde (Tempe) -- Diluted Magnetic Semiconductors

Preliminary List of Speakers.

1. Hisazumi Akai (Osaka Univ.)
2. Gerrit Bauer (Kavli-Institute, Delft)
3. Tomas Dietl (Warsaw)
4. Steven Erwin (NRL, USA)
5. Albert Fert (Univ. Paris-Sud)
6. Olle Eriksson (Uni. Uppsala, Sweden)
7. Tom Foxon (Univ. of Nottingham)
8. Sergey Ganichev (Univ. of Regensburg)
9. Charles Gould (Univ. of Würzburg)
10. E. L. Ivchenko (Ioffe Institute St. Petersburg)
11. Thomas Jungwirth (Prague & Univ. of Nottingham)
12. Yuichiro Kato (UCSB)
13. Daniel Loss (Univ. of Basel)
14. H. Katayama-Yoshida (Osaka Univ.)
15. Shingo Katsumoto (Univ. of Tokyo)
16. Paul Kelly (Univ. of Twente)
17. Leo Kouwenhoven (Kavli-Institute, Delft)
18. Charles Marcus (Harvard University)
19. Laurens Molenkamp (Univ. of Würzburg)
20. Junsako Nitta (Tohoku Univ.)
21. Tamio Oguchi (Uni. Hiroshima)
22. Hideo Ohno (Tohoku Univ.)
23. Dan Ralph (Cornell Univ.)
24. Frederic Petroff (CNRS/Thales)
25. Stefano Sanvito (Dublin, CRAN)
26. Mark van Schilfgaarde (Uni Arizona, Tempe)
27. Ilja Turek (Bruno, Academy of Science)
28. Bart van Wees (Groningen Univ.)
29. Joerg Wunderlich (Hitachi Cambridge)
30. Herre van der Zant (Kavli-Institute, Delft)

CV of Prof. Dr. S. Blügel

Name: Dr. Stefan Blügel

Date of birth: 29/01/1957

Nationality: German

Private address: Am Gut Bau 10, 52052 Aachen

Office address: Forschungszentrum Jülich GmbH, D-52425 Jülich

E-mail: S.Bluegel@fz-juelich.de

Education:

1977-1984, University of Saarbrücken and Rheinisch-Westfälische Technische Hochschule (RWTH) Aachen, Diplom in Physics: 1984

1984-1985, College of William and Mary, Williamsburg, VA, USA

1988, Ph.D. in Physics at RWTH Aachen

1996, Habilitation at RWTH Aachen

Employment:

1984-1988, Research Assistant, Forschungszentrum Jülich

1988-1990, Postdoctoral Fellow, University of Tokyo, Japan

1990-1994, Principal Investigator, Forschungszentrum Jülich

1994-2001, Senior Scientist, Forschungszentrum Jülich

2001-2003, Professor (C3) for Theoretical Physics, University of Osnabrück

2002- Director at the Institute of Solid State Research (IFF), Forschungszentrum Jülich (FZJ),

Department IFF-I: Quantum Theory of Materials

2003- Professor (C4) for Theoretical Physics, University RWTH Aachen

2006 Executive Director of the Department of Solid State Research (IFF),
Forschungszentrum Jülich (FZJ)

Honors:

1983 Springorum Memorial Medal, RWTH Aachen

1984-1985 Scholarship, German Academic Exchange Service (DAAD)

1988-1990 Feodor Lynen Fellowship, Alexander von Humboldt Foundation

1988 Friedrich Wilhelm Prize, RWTH Aachen

1993 Heinz Maier Leibnitz Prize, German Federal Secretary for Research and
Technology

1994 Academy Award, Academy of Sciences of the State North Rhine Westfalia

2001 Offer of Professor (C4) position at University of Kaiserslautern

2002 Offer declined

Diploma:

1984, Diplom in Physics

1988, Ph.D. in Physics at RWTH Aachen

1996, Habilitation at RWTH Aachen

Curriculum Vitae of Patrick Bruno

Personal data

Last name: Bruno
First name: Patrick
Academic title: Prof. Dr.

Birth date and place: 26 May, 1964, in Paris

Citizenship: France



Max Planck Institute of Microstructure Physics
Weinberg 2, D-06120 Halle, Germany

phone (direct): +49 345 5582 763 e-mail: bruno@mpi-halle.de
phone (secretary): +49 345 5582 764 internet: <http://www.mpi-halle.de/~bruno>
fax: +49 345 5582 765

Education

- 1986 - 1989 : Ph.D. Thesis, at the Institut d'Électronique Fondamentale, Université Paris-Sud, Orsay (France);
- 1986 : ``Diplôme d'Études Approfondies" in Solid State Physics, Université Pierre et Marie Curie (Paris, France).
- 1986 : ``Agrégation de Physique" (rank: 1st).
- 1983 - 1987 : Physics Studies in ``École Normale Supérieure" (Saint-Cloud, France) and Université Pierre et Marie Curie (Paris, France).

Positions held

- 2000 – 2001 and since 2006: Managing Director of the Max Planck Institute of Microstructure Physics, Halle (Germany).
- since 1998: Scientific Member and Director at the Max Planck Institute of Microstructure Physics Halle (Germany); Director of the Theory Department.
- 1991 – 1998: CNRS Staff Scientist ("Chargé de Recherche") at the "Institut d'Électronique Fondamentale," University Paris-Sud, Orsay (France).
- 1989 – 1991: Post-doc, University of Regensburg (Germany).

Sabbaticals

- April – June 2005: Invited Professor, École Polytechnique Fédérale de Lausanne.
- August – October 2002: Visiting scientist, Kavli Institute of Theoretical Physics, University of California at Santa Barbara.
- May – November 1997: Visiting scientist, University of Nagoya.

Honors

- 1999: Adjunct Professor of Theoretical Physics at the Martin-Luther University Halle-Wittenberg.
- 1997: Fellowship of the Japan Society for the Promotion of Science.
- 1994: CNRS Bronze Medal.
- 1989: Fellowship of the Alexander von Humboldt Foundation

Research activities:

- since 2005: diabolical points in molecular magnets
- since 2002: Berry phase related phenomena in nanostructures
- since 2001: magnetism of surfaces and nanostructures on surfaces
- 2001 – 2005: magnetic semiconductors
- 2001 – 2002: Magnetic Casimir effect
- since 2000: exchange interactions and Curie temperature in bulk and layered magnetic materials
- since 1999: anomalous Hall effect
- 1999: micromagnetism of nanostructures
- since 1996: spin-electronics
- 1994 – 1998: quantum size effects in magneto-optics
- 1991 – 1997: interlayer exchange coupling
- 1989 – 1992: thermodynamics of two-dimensional ferromagnets
- 1986 – 1991: magnetization reversal processes in ultrathin films
- 1986 – 1991: magnetic anisotropy in ultrathin films

Scientific publications and communications

- 14 review papers and contributions to books;
- 165 original publications in scientific journals, of which 2 papers selected in the "Hot Papers in Physics" of the Institute of Scientific Information (selection of the 10 most cited papers in physics for a period of 2 months). These publications totalize more than 3000 citations, 13 of them exceeding 100 citations.
- 142 invited conferences (of which 3 plenary papers)

Conference organization

- Workshop on Magnetic Nanostructures, Brasilia (Brazil), November 2005 (Director)
- W.E. Heraeus Summerschool on Spin-Electronics, Wittenberg (Germany), August 2005 (Co-Chair)
- Gordon Conference on Magnetic Nanostructures, Big Sky (USA), August 2004 (Chairman).
- Annual Meeting of the EU RTN "Computational Magneto-Electronics", Halle (Germany), October 2003 (Chairman).
- Gordon Conference on Magnetic Nanostructures, Il Ciocco (Italy), May 2002 (Vice-Chairman).
- Symposium on Spin-Electronics (Co-Chair), Halle (Germany), 3–6 July 2000;
- International Advisory Committee of the International Colloquium on Magnetic Films and Surfaces (since 1997);
- Winter school "Nanostructures Magnétiques", Aussois (France), 1995.

CV

Prof. Dr. Dieter Weiss

Professor of Physics
Born 1955

Institute of Experimental
and Applied Physics
University of Regensburg
Universitätsstraße 31
93053 Regensburg

Tel.: ++49 (0)941 943 3197

Fax: ++49 (0)931 943 3196

e-mail: dieter.weiss@physik.uni-regensburg.de

<http://www.physik.uni-regensburg.de/forschung/weiss/>



1982	'Diploma' in Physics at LMU München
1987	'Dr. rer. nat' at TU München with Prof. von Klitzing
1987-1990	Scientific employee at MPI für Festkörperforschung, Stuttgart
1990-1991	Consultant, Bell Communication Research (Bellcore) USA
1991-1995	Scientific employee at MPI für Festkörperforschung, Stuttgart
1993	'Habilitation' at Universität Stuttgart
1993	Otto-Klug-Price for Physics (www.otto-klung-weberbank-preis.de)
Since 1995	Professor of Physics (chair) at the University of Regensburg
1997-2005	Editor of Physica E: Low dimensional systems and nanostructures
09./10. 1998	Guest professor at NTT, Hon-Atsugi, Japan
1999-2001	Dean of the Faculty for Physics, Regensburg University
1999-2006	Spokesperson for DFG-Research Unit FOR 370 "Ferromagnet-semiconductor nanostructures"
Since 2004	Elected Member of the DFG Review Board "Condensed Matter"
Since 2004	Member of the Senate of the University of Regensburg
Since 2004	Member of the Scientific Advisory Board of the "Paul-Drude Institute for Solid State Electronics", Berlin
Since 2005	Spokesperson for DFG Collaborative Research Centre SFB 689 "Spin phenomena in reduced dimensions"

Research interests

Properties of nanopatterned ferromagnets, superconductors and semiconductors, transport in low-dimensional electronic systems (quantum Hall systems, mesoscopic physics), ferromagnet-semiconductor hybrid structures, ferromagnetic semiconductors, spintronics.

International Conference on Nanospintronics Design and Realization ICNDR 2007

May 21st - 25th 2007

Venue: Max-Planck-Institute for Physics of Complex Systems, Dresden, Germany

Abstract:

Spintronics is currently among of the most active research themes in condensed matter physics. This field is progressing very fast and continues branching into increasingly wider areas of condensed matter. The main objective of the Conference on Nanospintronics Design and Realization is to bring together leading scientists in Europe, Japan and the US, being active in different fields of spintronics, also, in state-of-the-art first principles calculations.

Organizers:

*) Stefan Blügel

Institute for Solid State Research (IFF)

Forschungszentrum Jülich GmbH

D-52425 Juelich

Germany

Phone: +49 2461 61 4249

Fax: +49 2461 61 2850

Email: S.Bluegel@fz-juelich.de

*) Patrick Bruno

Theory Department

Max-Planck Institut für Mikrostrukturphysik

Weinberg 2

D-06120 Halle

Tel: +49 345 5582 763

Fax: +49 345 5582 765

Email: bruno@mpi-halle.de

*) Dieter Weiss

Experimentelle und Angewandte Physik

Universität Regensburg

D-93040 Regensburg

Tel: +49 941 943 3197

Fax: +49 941 943 3196

Email: dieter.weiss@physik.uni-regensburg.de

MOTIVATION AND OBJECTIVE:

Spintronics is currently among of the most active research themes in condensed matter physics. The field is progressing very fast and continues branching into an increasingly wider area of condensed matter: these involve the strongly correlated electron systems, the connection to semiconductors in terms of diluted magnetic semiconductors, to organic and inorganic molecules in terms of molecular magnets, to carbon nano-tubes in the field of nanospintronics or even to ferro-electric materials in terms of multiferroics. This is a field where first-principles theory meets transport theory, mesoscopic physics and device oriented concepts. It is thus a field providing a challenge for our community.

The conference is intended to provide an international forum for theoretical and experimental researchers, in the rapidly developing field of nanospintronics. It aims to:

- * provide an overview of our current understanding of the physics of spin transport in (magnetic) semiconductors and hybrid magnetic/semiconductor structures;
- * provide a venue to present and discuss the latest developments in using spin-dependent phenomena in nano-(opto-) electronics and computing applications;
- * provide a venue for discussion and assessment of other possible means of exploiting the spin-dependent phenomena in future nano-(opto-) electronic and computing applications;
- * to address current (and foreseeable future) problems, of fundamental and applied nature, in an effort to bridge the physics and technology gap between semiconducting and magnetic materials.

All of these being geared towards bringing about the realization of a functioning Nanospintronics.

Here we apply to the ESF Psi-k Network for 10.000 Euro to support organizing the International Conference on Nanospintronic Design and Realization 2007, May 21st-25th 2007 at the Max-Planck-Institut for Complex Systems in Dresden (Germany).

This conference is part of the initiative of the working groups Magnetoelectronics and Complex Magnetism of the Psi-k Network to organize within the next years a regular series of conferences and workshops, which started this year with the "Juelich Conference on Computational Magnetism and Spintronics".

TOPICS

A: New Materials (Computational Nano-Materials/Device Design and Fabrication)

- A1. Diluted Magnetic Semiconductors
Curie temperatures, exchange mechanisms, correlation issues,
short range order and segregation, dimensional effects, magnetic anisotropy, etc.
- A2. Halfmetallic Systems
Heusler alloys and other half-metallic systems (e.g. CrAs)
bulk, disorder, interfaces correlated half-metallic systems
(double perovskites, manganites, magnetite)
- A3. Nanomagnets
Magnetic monolayers, wires and clusters on surfaces
Spin and orbital moments, magnetic anisotropies, geometrical
structures, etc.
Magnetic nanocontacts and nanowires
Molecular magnets (Mn₁₂-acetate, Fe₈, V₁₅)
- A4. Ferromagnet-Superconductor Junctions

B: Novel Phenomena

- B1. Spin Injection
Ferromagnet into semiconductor
Diluted magnetic semiconductor into semiconductor
- B2. Spin Coherence and Decoherence
Primarily in semiconductors, but also in metals and ferromagnets.
Decoherence effects (spin-orbit, hyperfine interactions, ...)
- B3. Spin Transport and Manipulation
GMR, TMR, etc. with half-metallic systems
Nano spin electronics (nanocontacts, wires)
Spin manipulation in semiconductors
- B4. Spin-opto electronics
Connection between spin and optoelectronics
- B5. Nanomagnet dynamics and spin dissipation
Spin accumulation
Current-induced switching
Physics of the damping parameter α in Gilbert-Landau-
Lifschitz equations
- B6. Magnetic excitations in nano materials
Spin wave excitations, spin precession
Curie temperatures in low-dimensional systems
Femto- and atto-second dynamics

C: Other topics addressing Nanospintronics Design and Realization

Spin related phenomena in semiconductor heterostructures as well as in bulk semi-conductors
Spin dependent transport
Spin dependent tunneling
Magneto-optical effects
Photo- and field-induced phase transitions
Ferromagnetism and other cooperative phenomena
Spin relaxation, memory and coherence
Spin quantum computing in semiconductors
Materials preparation, properties and device application of:
diluted magnetic semiconductors
magnetic semiconductors
semiconductor/magnetic material hybrid structures
semiconductor nanostructures

Schedule:

We plan with 80 participants: - 30 Invited Speakers

We expect that

- 50 participants come from Europe
- 20 participants come from Japan
- 10 participants come from the US

We plan 30 minutes for every invited talk followed by 10 minutes of discussion, 15 minutes for every contributed talk followed by 5 minutes of discussion one or two poster sessions depending on the demand. In total, we plan 15 sessions over two and a half days.

Funding:

The guest programme of the Max-Planck Institute for Complex Systems covers the accommodation and local costs of 30 participants. It covers the local costs e.g. the conference hall.

In order to support and contribute to the travel and accommodation costs of European scientists of our community, we ask support from the ESF Psi-k Network for 10.000 Euro.

INVITED SPEAKERS from Psi-K Community:

Olle Eriksson (Uppsala) -- Diluted Magnetic Semiconductors
Paul J. Kelly (Twente) -- Spintransport
Josef Kudrnovsky (Prague) -- Diluted Magnetic Semiconductors
Stefano Sanvito (Dublin) -- Molecular transport
Ilja Turek (Bruno) -- Spin-mixing conductance of thin magnetic layers

Guests:

Hisazumi Akai -- Spin-transport in antiferromagnetic
Hiroshi Katayama-Yoshida (Osaka) -- Kombu-phase formation
Tamio Oguchi (Hiroshima) -- Multiferroics
Mark van Schilfgaarde (Tempe) -- Diluted Magnetic Semiconductors

Preliminary List of Speakers.

1. Hisazumi Akai (Osaka Univ.)
2. Gerrit Bauer (Kavli-Institute, Delft)
3. Tomas Dietl (Warsaw)
4. Steven Erwin (NRL, USA)
5. Albert Fert (Univ. Paris-Sud)
6. Olle Eriksson (Uni. Uppsala, Sweden)
7. Tom Foxon (Univ. of Nottingham)
8. Sergey Ganichev (Univ. of Regensburg)
9. Charles Gould (Univ. of Würzburg)
10. E. L. Ivchenko (Ioffe Institute St. Petersburg)
11. Thomas Jungwirth (Prague & Univ. of Nottingham)
12. Yuichiro Kato (UCSB)
13. Daniel Loss (Univ. of Basel)
14. H. Katayama-Yoshida (Osaka Univ.)
15. Shingo Katsumoto (Univ. of Tokyo)
16. Paul Kelly (Univ. of Twente)
17. Leo Kouwenhoven (Kavli-Institute, Delft)
18. Charles Marcus (Harvard University)
19. Laurens Molenkamp (Univ. of Würzburg)
20. Junsako Nitta (Tohoku Univ.)
21. Tamio Oguchi (Uni. Hiroshima)
22. Hideo Ohno (Tohoku Univ.)
23. Dan Ralph (Cornell Univ.)
24. Frederic Petroff (CNRS/Thales)
25. Stefano Sanvito (Dublin, CRAN)
26. Mark van Schilfgaarde (Uni Arizona, Tempe)
27. Ilja Turek (Bruno, Academy of Science)
28. Bart van Wees (Groningen Univ.)
29. Joerg Wunderlich (Hitachi Cambridge)
30. Herre van der Zant (Kavli-Institute, Delft)

CV of Prof. Dr. S. Blügel

Name: Dr. Stefan Blügel

Date of birth: 29/01/1957

Nationality: German

Private address: Am Gut Bau 10, 52052 Aachen

Office address: Forschungszentrum Jülich GmbH, D-52425 Jülich

E-mail: S.Bluegel@fz-juelich.de

Education:

1977-1984, University of Saarbrücken and Rheinisch-Westfälische Technische Hochschule (RWTH) Aachen, Diplom in Physics: 1984

1984-1985, College of William and Mary, Williamsburg, VA, USA

1988, Ph.D. in Physics at RWTH Aachen

1996, Habilitation at RWTH Aachen

Employment:

1984-1988, Research Assistant, Forschungszentrum Jülich

1988-1990, Postdoctoral Fellow, University of Tokyo, Japan

1990-1994, Principal Investigator, Forschungszentrum Jülich

1994-2001, Senior Scientist, Forschungszentrum Jülich

2001-2003, Professor (C3) for Theoretical Physics, University of Osnabrück

2002- Director at the Institute of Solid State Research (IFF), Forschungszentrum Jülich (FZJ),

Department IFF-I: Quantum Theory of Materials

2003- Professor (C4) for Theoretical Physics, University RWTH Aachen

2006 Executive Director of the Department of Solid State Research (IFF),
Forschungszentrum Jülich (FZJ)

Honors:

1983 Springorum Memorial Medal, RWTH Aachen

1984-1985 Scholarship, German Academic Exchange Service (DAAD)

1988-1990 Feodor Lynen Fellowship, Alexander von Humboldt Foundation

1988 Friedrich Wilhelm Prize, RWTH Aachen

1993 Heinz Maier Leibnitz Prize, German Federal Secretary for Research and
Technology

1994 Academy Award, Academy of Sciences of the State North Rhine Westfalia

2001 Offer of Professor (C4) position at University of Kaiserslautern

2002 Offer declined

Diploma:

1984, Diplom in Physics

1988, Ph.D. in Physics at RWTH Aachen

1996, Habilitation at RWTH Aachen

Curriculum Vitae of Patrick Bruno

Personal data

Last name: Bruno
First name: Patrick
Academic title: Prof. Dr.

Birth date and place: 26 May, 1964, in Paris

Citizenship: France



Max Planck Institute of Microstructure Physics
Weinberg 2, D-06120 Halle, Germany

phone (direct): +49 345 5582 763 e-mail: bruno@mpi-halle.de
phone (secretary): +49 345 5582 764 internet: <http://www.mpi-halle.de/~bruno>
fax: +49 345 5582 765

Education

- 1986 - 1989 : Ph.D. Thesis, at the Institut d'Électronique Fondamentale, Université Paris-Sud, Orsay (France);
- 1986 : ``Diplôme d'Études Approfondies" in Solid State Physics, Université Pierre et Marie Curie (Paris, France).
- 1986 : ``Agrégation de Physique" (rank: 1st).
- 1983 - 1987 : Physics Studies in ``École Normale Supérieure" (Saint-Cloud, France) and Université Pierre et Marie Curie (Paris, France).

Positions held

- 2000 – 2001 and since 2006: Managing Director of the Max Planck Institute of Microstructure Physics, Halle (Germany).
- since 1998: Scientific Member and Director at the Max Planck Institute of Microstructure Physics Halle (Germany); Director of the Theory Department.
- 1991 – 1998: CNRS Staff Scientist ("Chargé de Recherche") at the "Institut d'Électronique Fondamentale," University Paris-Sud, Orsay (France).
- 1989 – 1991: Post-doc, University of Regensburg (Germany).

Sabbaticals

- April – June 2005: Invited Professor, École Polytechnique Fédérale de Lausanne.
- August – October 2002: Visiting scientist, Kavli Institute of Theoretical Physics, University of California at Santa Barbara.
- May – November 1997: Visiting scientist, University of Nagoya.

Honors

- 1999: Adjunct Professor of Theoretical Physics at the Martin-Luther University Halle-Wittenberg.
- 1997: Fellowship of the Japan Society for the Promotion of Science.
- 1994: CNRS Bronze Medal.
- 1989: Fellowship of the Alexander von Humboldt Foundation

Research activities:

- since 2005: diabolical points in molecular magnets
- since 2002: Berry phase related phenomena in nanostructures
- since 2001: magnetism of surfaces and nanostructures on surfaces
- 2001 – 2005: magnetic semiconductors
- 2001 – 2002: Magnetic Casimir effect
- since 2000: exchange interactions and Curie temperature in bulk and layered magnetic materials
- since 1999: anomalous Hall effect
- 1999: micromagnetism of nanostructures
- since 1996: spin-electronics
- 1994 – 1998: quantum size effects in magneto-optics
- 1991 – 1997: interlayer exchange coupling
- 1989 – 1992: thermodynamics of two-dimensional ferromagnets
- 1986 – 1991: magnetization reversal processes in ultrathin films
- 1986 – 1991: magnetic anisotropy in ultrathin films

Scientific publications and communications

- 14 review papers and contributions to books;
- 165 original publications in scientific journals, of which 2 papers selected in the "Hot Papers in Physics" of the Institute of Scientific Information (selection of the 10 most cited papers in physics for a period of 2 months). These publications totalize more than 3000 citations, 13 of them exceeding 100 citations.
- 142 invited conferences (of which 3 plenary papers)

Conference organization

- Workshop on Magnetic Nanostructures, Brasilia (Brazil), November 2005 (Director)
- W.E. Heraeus Summerschool on Spin-Electronics, Wittenberg (Germany), August 2005 (Co-Chair)
- Gordon Conference on Magnetic Nanostructures, Big Sky (USA), August 2004 (Chairman).
- Annual Meeting of the EU RTN "Computational Magneto-Electronics", Halle (Germany), October 2003 (Chairman).
- Gordon Conference on Magnetic Nanostructures, Il Ciocco (Italy), May 2002 (Vice-Chairman).
- Symposium on Spin-Electronics (Co-Chair), Halle (Germany), 3–6 July 2000;
- International Advisory Committee of the International Colloquium on Magnetic Films and Surfaces (since 1997);
- Winter school "Nanostructures Magnétiques", Aussois (France), 1995.

CV

Prof. Dr. Dieter Weiss

Professor of Physics
Born 1955

Institute of Experimental
and Applied Physics
University of Regensburg
Universitätsstraße 31
93053 Regensburg

Tel.: ++49 (0)941 943 3197

Fax: ++49 (0)931 943 3196

e-mail: dieter.weiss@physik.uni-regensburg.de

<http://www.physik.uni-regensburg.de/forschung/weiss/>



1982	'Diploma' in Physics at LMU München
1987	'Dr. rer. nat' at TU München with Prof. von Klitzing
1987-1990	Scientific employee at MPI für Festkörperforschung, Stuttgart
1990-1991	Consultant, Bell Communication Research (Bellcore) USA
1991-1995	Scientific employee at MPI für Festkörperforschung, Stuttgart
1993	'Habilitation' at Universität Stuttgart
1993	Otto-Klug-Price for Physics (www.otto-klung-weberbank-preis.de)
Since 1995	Professor of Physics (chair) at the University of Regensburg
1997-2005	Editor of Physica E: Low dimensional systems and nanostructures
09./10. 1998	Guest professor at NTT, Hon-Atsugi, Japan
1999-2001	Dean of the Faculty for Physics, Regensburg University
1999-2006	Spokesperson for DFG-Research Unit FOR 370 "Ferromagnet-semiconductor nanostructures"
Since 2004	Elected Member of the DFG Review Board "Condensed Matter"
Since 2004	Member of the Senate of the University of Regensburg
Since 2004	Member of the Scientific Advisory Board of the "Paul-Drude Institute for Solid State Electronics", Berlin
Since 2005	Spokesperson for DFG Collaborative Research Centre SFB 689 "Spin phenomena in reduced dimensions"

Research interests

Properties of nanopatterned ferromagnets, superconductors and semiconductors, transport in low-dimensional electronic systems (quantum Hall systems, mesoscopic physics), ferromagnet-semiconductor hybrid structures, ferromagnetic semiconductors, spintronics.

International Conference on Nanospintronics Design and Realization ICNDR 2007

May 21st - 25th 2007

Venue: Max-Planck-Institute for Physics of Complex Systems, Dresden, Germany

Abstract:

Spintronics is currently among of the most active research themes in condensed matter physics. This field is progressing very fast and continues branching into increasingly wider areas of condensed matter. The main objective of the Conference on Nanospintronics Design and Realization is to bring together leading scientists in Europe, Japan and the US, being active in different fields of spintronics, also, in state-of-the-art first principles calculations.

Organizers:

*) Stefan Blügel

Institute for Solid State Research (IFF)
Forschungszentrum Jülich GmbH
D-52425 Juelich
Germany
Phone: +49 2461 61 4249
Fax: +49 2461 61 2850
Email: S.Bluegel@fz-juelich.de

*) Patrick Bruno

Theory Department
Max-Planck Institut für Mikrostrukturphysik
Weinberg 2
D-06120 Halle
Tel: +49 345 5582 763
Fax: +49 345 5582 765
Email: bruno@mpi-halle.de

*) Dieter Weiss

Experimentelle und Angewandte Physik
Universität Regensburg
D-93040 Regensburg
Tel: +49 941 943 3197
Fax: +49 941 943 3196
Email: dieter.weiss@physik.uni-regensburg.de

MOTIVATION AND OBJECTIVE:

Spintronics is currently among of the most active research themes in condensed matter physics. The field is progressing very fast and continues branching into an increasingly wider area of condensed matter: these involve the strongly correlated electron systems, the connection to semiconductors in terms of diluted magnetic semiconductors, to organic and inorganic molecules in terms of molecular magnets, to carbon nano-tubes in the field of nanospintronics or even to ferro-electric materials in terms of multiferroics. This is a field where first-principles theory meets transport theory, mesoscopic physics and device oriented concepts. It is thus a field providing a challenge for our community.

The conference is intended to provide an international forum for theoretical and experimental researchers, in the rapidly developing field of nanospintronics. It aims to:

- * provide an overview of our current understanding of the physics of spin transport in (magnetic) semiconductors and hybrid magnetic/semiconductor structures;
- * provide a venue to present and discuss the latest developments in using spin-dependent phenomena in nano-(opto-) electronics and computing applications;
- * provide a venue for discussion and assessment of other possible means of exploiting the spin-dependent phenomena in future nano-(opto-) electronic and computing applications;
- * to address current (and foreseeable future) problems, of fundamental and applied nature, in an effort to bridge the physics and technology gap between semiconducting and magnetic materials.

All of these being geared towards bringing about the realization of a functioning Nanospintronics.

Here we apply to the ESF Psi-k Network for 10.000 Euro to support organizing the International Conference on Nanospintronic Design and Realization 2007, May 21st-25th 2007 at the Max-Planck-Institut for Complex Systems in Dresden (Germany).

This conference is part of the initiative of the working groups Magnetoelectronics and Complex Magnetism of the Psi-k Network to organize within the next years a regular series of conferences and workshops, which started this year with the "Juelich Conference on Computational Magnetism and Spintronics".

TOPICS

A: New Materials (Computational Nano-Materials/Device Design and Fabrication)

- A1. Diluted Magnetic Semiconductors
Curie temperatures, exchange mechanisms, correlation issues,
short range order and segregation, dimensional effects, magnetic anisotropy, etc.
- A2. Halfmetallic Systems
Heusler alloys and other half-metallic systems (e.g. CrAs)
bulk, disorder, interfaces correlated half-metallic systems
(double perovskites, manganites, magnetite)
- A3. Nanomagnets
Magnetic monolayers, wires and clusters on surfaces
Spin and orbital moments, magnetic anisotropies, geometrical
structures, etc.
Magnetic nanocontacts and nanowires
Molecular magnets (Mn₁₂-acetate, Fe₈, V₁₅)
- A4. Ferromagnet-Superconductor Junctions

B: Novel Phenomena

- B1. Spin Injection
Ferromagnet into semiconductor
Diluted magnetic semiconductor into semiconductor
- B2. Spin Coherence and Decoherence
Primarily in semiconductors, but also in metals and ferromagnets.
Decoherence effects (spin-orbit, hyperfine interactions, ...)
- B3. Spin Transport and Manipulation
GMR, TMR, etc. with half-metallic systems
Nano spin electronics (nanocontacts, wires)
Spin manipulation in semiconductors
- B4. Spin-opto electronics
Connection between spin and optoelectronics
- B5. Nanomagnet dynamics and spin dissipation
Spin accumulation
Current-induced switching
Physics of the damping parameter α in Gilbert-Landau-
Lifschitz equations
- B6. Magnetic excitations in nano materials
Spin wave excitations, spin precession
Curie temperatures in low-dimensional systems
Femto- and atto-second dynamics

C: Other topics addressing Nanospintronics Design and Realization

Spin related phenomena in semiconductor heterostructures as well as in bulk semi-conductors

Spin dependent transport

Spin dependent tunneling

Magneto-optical effects

Photo- and field-induced phase transitions

Ferromagnetism and other cooperative phenomena

Spin relaxation, memory and coherence

Spin quantum computing in semiconductors

Materials preparation, properties and device application of:

diluted magnetic semiconductors

magnetic semiconductors

semiconductor/magnetic material hybrid structures

semiconductor nanostructures

Schedule:

We plan with 80 participants: - 30 Invited Speakers

We expect that

- 50 participants come from Europe

- 20 participants come from Japan

- 10 participants come from the US

We plan 30 minutes for every invited talk followed by 10 minutes of discussion, 15 minutes for every contributed talk followed by 5 minutes of discussion one or two poster sessions depending on the demand. In total, we plan 15 sessions over two and a half days.

Funding:

The guest programme of the Max-Planck Institute for Complex Systems covers the accommodation and local costs of 30 participants. It covers the local costs e.g. the conference hall.

In order to support and contribute to the travel and accommodation costs of European scientists of our community, we ask support from the ESF Psi-k Network for 10.000 Euro.

INVITED SPEAKERS from Psi-K Community:

Olle Eriksson (Uppsala) -- Diluted Magnetic Semiconductors
Paul J. Kelly (Twente) -- Spintransport
Josef Kudrnovsky (Prague) -- Diluted Magnetic Semiconductors
Stefano Sanvito (Dublin) -- Molecular transport
Ilja Turek (Bruno) -- Spin-mixing conductance of thin magnetic layers

Guests:

Hisazumi Akai -- Spin-transport in antiferromagnetic
Hiroshi Katayama-Yoshida (Osaka) -- Kombu-phase formation
Tamio Oguchi (Hiroshima) -- Multiferroics
Mark van Schilfgaarde (Tempe) -- Diluted Magnetic Semiconductors

Preliminary List of Speakers.

1. Hisazumi Akai (Osaka Univ.)
2. Gerrit Bauer (Kavli-Institute, Delft)
3. Tomas Dietl (Warsaw)
4. Steven Erwin (NRL, USA)
5. Albert Fert (Univ. Paris-Sud)
6. Olle Eriksson (Uni. Uppsala, Sweden)
7. Tom Foxon (Univ. of Nottingham)
8. Sergey Ganichev (Univ. of Regensburg)
9. Charles Gould (Univ. of Würzburg)
10. E. L. Ivchenko (Ioffe Institute St. Petersburg)
11. Thomas Jungwirth (Prague & Univ. of Nottingham)
12. Yuichiro Kato (UCSB)
13. Daniel Loss (Univ. of Basel)
14. H. Katayama-Yoshida (Osaka Univ.)
15. Shingo Katsumoto (Univ. of Tokyo)
16. Paul Kelly (Univ. of Twente)
17. Leo Kouwenhoven (Kavli-Institute, Delft)
18. Charles Marcus (Harvard University)
19. Laurens Molenkamp (Univ. of Würzburg)
20. Junsako Nitta (Tohoku Univ.)
21. Tamio Oguchi (Uni. Hiroshima)
22. Hideo Ohno (Tohoku Univ.)
23. Dan Ralph (Cornell Univ.)
24. Frederic Petroff (CNRS/Thales)
25. Stefano Sanvito (Dublin, CRAN)
26. Mark van Schilfgaarde (Uni Arizona, Tempe)
27. Ilja Turek (Bruno, Academy of Science)
28. Bart van Wees (Groningen Univ.)
29. Joerg Wunderlich (Hitachi Cambridge)
30. Herre van der Zant (Kavli-Institute, Delft)

CV of Prof. Dr. S. Blügel

Name: Dr. Stefan Blügel

Date of birth: 29/01/1957

Nationality: German

Private address: Am Gut Bau 10, 52052 Aachen

Office address: Forschungszentrum Jülich GmbH, D-52425 Jülich

E-mail: S.Bluegel@fz-juelich.de

Education:

1977-1984, University of Saarbrücken and Rheinisch-Westfälische Technische Hochschule (RWTH) Aachen, Diplom in Physics: 1984

1984-1985, College of William and Mary, Williamsburg, VA, USA

1988, Ph.D. in Physics at RWTH Aachen

1996, Habilitation at RWTH Aachen

Employment:

1984-1988, Research Assistant, Forschungszentrum Jülich

1988-1990, Postdoctoral Fellow, University of Tokyo, Japan

1990-1994, Principal Investigator, Forschungszentrum Jülich

1994-2001, Senior Scientist, Forschungszentrum Jülich

2001-2003, Professor (C3) for Theoretical Physics, University of Osnabrück

2002- Director at the Institute of Solid State Research (IFF), Forschungszentrum Jülich (FZJ),

Department IFF-I: Quantum Theory of Materials

2003- Professor (C4) for Theoretical Physics, University RWTH Aachen

2006 Executive Director of the Department of Solid State Research (IFF),
Forschungszentrum Jülich (FZJ)

Honors:

1983 Springorum Memorial Medal, RWTH Aachen

1984-1985 Scholarship, German Academic Exchange Service (DAAD)

1988-1990 Feodor Lynen Fellowship, Alexander von Humboldt Foundation

1988 Friedrich Wilhelm Prize, RWTH Aachen

1993 Heinz Maier Leibnitz Prize, German Federal Secretary for Research and
Technology

1994 Academy Award, Academy of Sciences of the State North Rhine Westfalia

2001 Offer of Professor (C4) position at University of Kaiserslautern

2002 Offer declined

Diploma:

1984, Diplom in Physics

1988, Ph.D. in Physics at RWTH Aachen

1996, Habilitation at RWTH Aachen

Curriculum Vitae of Patrick Bruno

Personal data

Last name: Bruno
First name: Patrick
Academic title: Prof. Dr.

Birth date and place: 26 May, 1964, in Paris

Citizenship: France



Max Planck Institute of Microstructure Physics
Weinberg 2, D-06120 Halle, Germany

phone (direct): +49 345 5582 763 e-mail: bruno@mpi-halle.de
phone (secretary): +49 345 5582 764 internet: <http://www.mpi-halle.de/~bruno>
fax: +49 345 5582 765

Education

- 1986 - 1989 : Ph.D. Thesis, at the Institut d'Électronique Fondamentale, Université Paris-Sud, Orsay (France);
- 1986 : ``Diplôme d'Études Approfondies" in Solid State Physics, Université Pierre et Marie Curie (Paris, France).
- 1986 : ``Agrégation de Physique" (rank: 1st).
- 1983 - 1987 : Physics Studies in ``École Normale Supérieure" (Saint-Cloud, France) and Université Pierre et Marie Curie (Paris, France).

Positions held

- 2000 – 2001 and since 2006: Managing Director of the Max Planck Institute of Microstructure Physics, Halle (Germany).
- since 1998: Scientific Member and Director at the Max Planck Institute of Microstructure Physics Halle (Germany); Director of the Theory Department.
- 1991 – 1998: CNRS Staff Scientist ("Chargé de Recherche") at the "Institut d'Électronique Fondamentale," University Paris-Sud, Orsay (France).
- 1989 – 1991: Post-doc, University of Regensburg (Germany).

Sabbaticals

- April – June 2005: Invited Professor, École Polytechnique Fédérale de Lausanne.
- August – October 2002: Visiting scientist, Kavli Institute of Theoretical Physics, University of California at Santa Barbara.
- May – November 1997: Visiting scientist, University of Nagoya.

Honors

- 1999: Adjunct Professor of Theoretical Physics at the Martin-Luther University Halle-Wittenberg.
- 1997: Fellowship of the Japan Society for the Promotion of Science.
- 1994: CNRS Bronze Medal.
- 1989: Fellowship of the Alexander von Humboldt Foundation

Research activities:

- since 2005: diabolical points in molecular magnets
- since 2002: Berry phase related phenomena in nanostructures
- since 2001: magnetism of surfaces and nanostructures on surfaces
- 2001 – 2005: magnetic semiconductors
- 2001 – 2002: Magnetic Casimir effect
- since 2000: exchange interactions and Curie temperature in bulk and layered magnetic materials
- since 1999: anomalous Hall effect
- 1999: micromagnetism of nanostructures
- since 1996: spin-electronics
- 1994 – 1998: quantum size effects in magneto-optics
- 1991 – 1997: interlayer exchange coupling
- 1989 – 1992: thermodynamics of two-dimensional ferromagnets
- 1986 – 1991: magnetization reversal processes in ultrathin films
- 1986 – 1991: magnetic anisotropy in ultrathin films

Scientific publications and communications

- 14 review papers and contributions to books;
- 165 original publications in scientific journals, of which 2 papers selected in the "Hot Papers in Physics" of the Institute of Scientific Information (selection of the 10 most cited papers in physics for a period of 2 months). These publications totalize more than 3000 citations, 13 of them exceeding 100 citations.
- 142 invited conferences (of which 3 plenary papers)

Conference organization

- Workshop on Magnetic Nanostructures, Brasilia (Brazil), November 2005 (Director)
- W.E. Heraeus Summerschool on Spin-Electronics, Wittenberg (Germany), August 2005 (Co-Chair)
- Gordon Conference on Magnetic Nanostructures, Big Sky (USA), August 2004 (Chairman).
- Annual Meeting of the EU RTN "Computational Magneto-Electronics", Halle (Germany), October 2003 (Chairman).
- Gordon Conference on Magnetic Nanostructures, Il Ciocco (Italy), May 2002 (Vice-Chairman).
- Symposium on Spin-Electronics (Co-Chair), Halle (Germany), 3–6 July 2000;
- International Advisory Committee of the International Colloquium on Magnetic Films and Surfaces (since 1997);
- Winter school "Nanostructures Magnétiques", Aussois (France), 1995.

CV

Prof. Dr. Dieter Weiss

Professor of Physics
Born 1955

Institute of Experimental
and Applied Physics
University of Regensburg
Universitätsstraße 31
93053 Regensburg

Tel.: ++49 (0)941 943 3197

Fax: ++49 (0)931 943 3196

e-mail: dieter.weiss@physik.uni-regensburg.de

<http://www.physik.uni-regensburg.de/forschung/weiss/>



1982	'Diploma' in Physics at LMU München
1987	'Dr. rer. nat' at TU München with Prof. von Klitzing
1987-1990	Scientific employee at MPI für Festkörperforschung, Stuttgart
1990-1991	Consultant, Bell Communication Research (Bellcore) USA
1991-1995	Scientific employee at MPI für Festkörperforschung, Stuttgart
1993	'Habilitation' at Universität Stuttgart
1993	Otto-Klug-Price for Physics (www.otto-klung-weberbank-preis.de)
Since 1995	Professor of Physics (chair) at the University of Regensburg
1997-2005	Editor of Physica E: Low dimensional systems and nanostructures
09./10. 1998	Guest professor at NTT, Hon-Atsugi, Japan
1999-2001	Dean of the Faculty for Physics, Regensburg University
1999-2006	Spokesperson for DFG-Research Unit FOR 370 "Ferromagnet-semiconductor nanostructures"
Since 2004	Elected Member of the DFG Review Board "Condensed Matter"
Since 2004	Member of the Senate of the University of Regensburg
Since 2004	Member of the Scientific Advisory Board of the "Paul-Drude Institute for Solid State Electronics", Berlin
Since 2005	Spokesperson for DFG Collaborative Research Centre SFB 689 "Spin phenomena in reduced dimensions"

Research interests

Properties of nanopatterned ferromagnets, superconductors and semiconductors, transport in low-dimensional electronic systems (quantum Hall systems, mesoscopic physics), ferromagnet-semiconductor hybrid structures, ferromagnetic semiconductors, spintronics.

International Conference on Nanospintronics Design and Realization ICNDR 2007

May 21st - 25th 2007

Venue: Max-Planck-Institute for Physics of Complex Systems, Dresden, Germany

Abstract:

Spintronics is currently among of the most active research themes in condensed matter physics. This field is progressing very fast and continues branching into increasingly wider areas of condensed matter. The main objective of the Conference on Nanospintronics Design and Realization is to bring together leading scientists in Europe, Japan and the US, being active in different fields of spintronics, also, in state-of-the-art first principles calculations.

Organizers:

*) Stefan Blügel

Institute for Solid State Research (IFF)
Forschungszentrum Jülich GmbH
D-52425 Juelich
Germany
Phone: +49 2461 61 4249
Fax: +49 2461 61 2850
Email: S.Bluegel@fz-juelich.de

*) Patrick Bruno

Theory Department
Max-Planck Institut für Mikrostrukturphysik
Weinberg 2
D-06120 Halle
Tel: +49 345 5582 763
Fax: +49 345 5582 765
Email: bruno@mpi-halle.de

*) Dieter Weiss

Experimentelle und Angewandte Physik
Universität Regensburg
D-93040 Regensburg
Tel: +49 941 943 3197
Fax: +49 941 943 3196
Email: dieter.weiss@physik.uni-regensburg.de

MOTIVATION AND OBJECTIVE:

Spintronics is currently among of the most active research themes in condensed matter physics. The field is progressing very fast and continues branching into an increasingly wider area of condensed matter: these involve the strongly correlated electron systems, the connection to semiconductors in terms of diluted magnetic semiconductors, to organic and inorganic molecules in terms of molecular magnets, to carbon nano-tubes in the field of nanospintronics or even to ferro-electric materials in terms of multiferroics. This is a field where first-principles theory meets transport theory, mesoscopic physics and device oriented concepts. It is thus a field providing a challenge for our community.

The conference is intended to provide an international forum for theoretical and experimental researchers, in the rapidly developing field of nanospintronics. It aims to:

- * provide an overview of our current understanding of the physics of spin transport in (magnetic) semiconductors and hybrid magnetic/semiconductor structures;
- * provide a venue to present and discuss the latest developments in using spin-dependent phenomena in nano-(opto-) electronics and computing applications;
- * provide a venue for discussion and assessment of other possible means of exploiting the spin-dependent phenomena in future nano-(opto-) electronic and computing applications;
- * to address current (and foreseeable future) problems, of fundamental and applied nature, in an effort to bridge the physics and technology gap between semiconducting and magnetic materials.

All of these being geared towards bringing about the realization of a functioning Nanospintronics.

Here we apply to the ESF Psi-k Network for 10.000 Euro to support organizing the International Conference on Nanospintronic Design and Realization 2007, May 21st-25th 2007 at the Max-Planck-Institut for Complex Systems in Dresden (Germany).

This conference is part of the initiative of the working groups Magnetoelectronics and Complex Magnetism of the Psi-k Network to organize within the next years a regular series of conferences and workshops, which started this year with the "Juelich Conference on Computational Magnetism and Spintronics".

TOPICS

A: New Materials (Computational Nano-Materials/Device Design and Fabrication)

- A1. Diluted Magnetic Semiconductors
Curie temperatures, exchange mechanisms, correlation issues,
short range order and segregation, dimensional effects, magnetic anisotropy, etc.
- A2. Halfmetallic Systems
Heusler alloys and other half-metallic systems (e.g. CrAs)
bulk, disorder, interfaces correlated half-metallic systems
(double perovskites, manganites, magnetite)
- A3. Nanomagnets
Magnetic monolayers, wires and clusters on surfaces
Spin and orbital moments, magnetic anisotropies, geometrical
structures, etc.
Magnetic nanocontacts and nanowires
Molecular magnets (Mn₁₂-acetate, Fe₈, V₁₅)
- A4. Ferromagnet-Superconductor Junctions

B: Novel Phenomena

- B1. Spin Injection
Ferromagnet into semiconductor
Diluted magnetic semiconductor into semiconductor
- B2. Spin Coherence and Decoherence
Primarily in semiconductors, but also in metals and ferromagnets.
Decoherence effects (spin-orbit, hyperfine interactions, ...)
- B3. Spin Transport and Manipulation
GMR, TMR, etc. with half-metallic systems
Nano spin electronics (nanocontacts, wires)
Spin manipulation in semiconductors
- B4. Spin-opto electronics
Connection between spin and optoelectronics
- B5. Nanomagnet dynamics and spin dissipation
Spin accumulation
Current-induced switching
Physics of the damping parameter α in Gilbert-Landau-
Lifschitz equations
- B6. Magnetic excitations in nano materials
Spin wave excitations, spin precession
Curie temperatures in low-dimensional systems
Femto- and atto-second dynamics

C: Other topics addressing Nanospintronics Design and Realization

Spin related phenomena in semiconductor heterostructures as well as in bulk semi-conductors
Spin dependent transport
Spin dependent tunneling
Magneto-optical effects
Photo- and field-induced phase transitions
Ferromagnetism and other cooperative phenomena
Spin relaxation, memory and coherence
Spin quantum computing in semiconductors
Materials preparation, properties and device application of:
diluted magnetic semiconductors
magnetic semiconductors
semiconductor/magnetic material hybrid structures
semiconductor nanostructures

Schedule:

We plan with 80 participants: - 30 Invited Speakers

We expect that

- 50 participants come from Europe
- 20 participants come from Japan
- 10 participants come from the US

We plan 30 minutes for every invited talk followed by 10 minutes of discussion, 15 minutes for every contributed talk followed by 5 minutes of discussion one or two poster sessions depending on the demand. In total, we plan 15 sessions over two and a half days.

Funding:

The guest programme of the Max-Planck Institute for Complex Systems covers the accommodation and local costs of 30 participants. It covers the local costs e.g. the conference hall.

In order to support and contribute to the travel and accommodation costs of European scientists of our community, we ask support from the ESF Psi-k Network for 10.000 Euro.

INVITED SPEAKERS from Psi-K Community:

Olle Eriksson (Uppsala) -- Diluted Magnetic Semiconductors
Paul J. Kelly (Twente) -- Spintransport
Josef Kudrnovsky (Prague) -- Diluted Magnetic Semiconductors
Stefano Sanvito (Dublin) -- Molecular transport
Ilja Turek (Bruno) -- Spin-mixing conductance of thin magnetic layers

Guests:

Hisazumi Akai -- Spin-transport in antiferromagnetic
Hiroshi Katayama-Yoshida (Osaka) -- Kombu-phase formation
Tamio Oguchi (Hiroshima) -- Multiferroics
Mark van Schilfgaarde (Tempe) -- Diluted Magnetic Semiconductors

Preliminary List of Speakers.

1. Hisazumi Akai (Osaka Univ.)
2. Gerrit Bauer (Kavli-Institute, Delft)
3. Tomas Dietl (Warsaw)
4. Steven Erwin (NRL, USA)
5. Albert Fert (Univ. Paris-Sud)
6. Olle Eriksson (Uni. Uppsala, Sweden)
7. Tom Foxon (Univ. of Nottingham)
8. Sergey Ganichev (Univ. of Regensburg)
9. Charles Gould (Univ. of Würzburg)
10. E. L. Ivchenko (Ioffe Institute St. Petersburg)
11. Thomas Jungwirth (Prague & Univ. of Nottingham)
12. Yuichiro Kato (UCSB)
13. Daniel Loss (Univ. of Basel)
14. H. Katayama-Yoshida (Osaka Univ.)
15. Shingo Katsumoto (Univ. of Tokyo)
16. Paul Kelly (Univ. of Twente)
17. Leo Kouwenhoven (Kavli-Institute, Delft)
18. Charles Marcus (Harvard University)
19. Laurens Molenkamp (Univ. of Würzburg)
20. Junsako Nitta (Tohoku Univ.)
21. Tamio Oguchi (Uni. Hiroshima)
22. Hideo Ohno (Tohoku Univ.)
23. Dan Ralph (Cornell Univ.)
24. Frederic Petroff (CNRS/Thales)
25. Stefano Sanvito (Dublin, CRAN)
26. Mark van Schilfgaarde (Uni Arizona, Tempe)
27. Ilja Turek (Bruno, Academy of Science)
28. Bart van Wees (Groningen Univ.)
29. Joerg Wunderlich (Hitachi Cambridge)
30. Herre van der Zant (Kavli-Institute, Delft)

CV of Prof. Dr. S. Blügel

Name: Dr. Stefan Blügel

Date of birth: 29/01/1957

Nationality: German

Private address: Am Gut Bau 10, 52052 Aachen

Office address: Forschungszentrum Jülich GmbH, D-52425 Jülich

E-mail: S.Bluegel@fz-juelich.de

Education:

1977-1984, University of Saarbrücken and Rheinisch-Westfälische Technische Hochschule (RWTH) Aachen, Diplom in Physics: 1984

1984-1985, College of William and Mary, Williamsburg, VA, USA

1988, Ph.D. in Physics at RWTH Aachen

1996, Habilitation at RWTH Aachen

Employment:

1984-1988, Research Assistant, Forschungszentrum Jülich

1988-1990, Postdoctoral Fellow, University of Tokyo, Japan

1990-1994, Principal Investigator, Forschungszentrum Jülich

1994-2001, Senior Scientist, Forschungszentrum Jülich

2001-2003, Professor (C3) for Theoretical Physics, University of Osnabrück

2002- Director at the Institute of Solid State Research (IFF), Forschungszentrum Jülich (FZJ),

Department IFF-I: Quantum Theory of Materials

2003- Professor (C4) for Theoretical Physics, University RWTH Aachen

2006 Executive Director of the Department of Solid State Research (IFF),
Forschungszentrum Jülich (FZJ)

Honors:

1983 Springorum Memorial Medal, RWTH Aachen

1984-1985 Scholarship, German Academic Exchange Service (DAAD)

1988-1990 Feodor Lynen Fellowship, Alexander von Humboldt Foundation

1988 Friedrich Wilhelm Prize, RWTH Aachen

1993 Heinz Maier Leibnitz Prize, German Federal Secretary for Research and
Technology

1994 Academy Award, Academy of Sciences of the State North Rhine Westfalia

2001 Offer of Professor (C4) position at University of Kaiserslautern

2002 Offer declined

Diploma:

1984, Diplom in Physics

1988, Ph.D. in Physics at RWTH Aachen

1996, Habilitation at RWTH Aachen

Curriculum Vitae of Patrick Bruno

Personal data

Last name: Bruno
First name: Patrick
Academic title: Prof. Dr.

Birth date and place: 26 May, 1964, in Paris

Citizenship: France



Max Planck Institute of Microstructure Physics
Weinberg 2, D-06120 Halle, Germany

phone (direct): +49 345 5582 763 e-mail: bruno@mpi-halle.de
phone (secretary): +49 345 5582 764 internet: <http://www.mpi-halle.de/~bruno>
fax: +49 345 5582 765

Education

- 1986 - 1989 : Ph.D. Thesis, at the Institut d'Électronique Fondamentale, Université Paris-Sud, Orsay (France);
- 1986 : ``Diplôme d'Études Approfondies" in Solid State Physics, Université Pierre et Marie Curie (Paris, France).
- 1986 : ``Agrégation de Physique" (rank: 1st).
- 1983 - 1987 : Physics Studies in ``École Normale Supérieure" (Saint-Cloud, France) and Université Pierre et Marie Curie (Paris, France).

Positions held

- 2000 – 2001 and since 2006: Managing Director of the Max Planck Institute of Microstructure Physics, Halle (Germany).
- since 1998: Scientific Member and Director at the Max Planck Institute of Microstructure Physics Halle (Germany); Director of the Theory Department.
- 1991 – 1998: CNRS Staff Scientist ("Chargé de Recherche") at the "Institut d'Électronique Fondamentale," University Paris-Sud, Orsay (France).
- 1989 – 1991: Post-doc, University of Regensburg (Germany).

Sabbaticals

- April – June 2005: Invited Professor, École Polytechnique Fédérale de Lausanne.
- August – October 2002: Visiting scientist, Kavli Institute of Theoretical Physics, University of California at Santa Barbara.
- May – November 1997: Visiting scientist, University of Nagoya.

Honors

- 1999: Adjunct Professor of Theoretical Physics at the Martin-Luther University Halle-Wittenberg.
- 1997: Fellowship of the Japan Society for the Promotion of Science.
- 1994: CNRS Bronze Medal.
- 1989: Fellowship of the Alexander von Humboldt Foundation

Research activities:

- since 2005: diabolical points in molecular magnets
- since 2002: Berry phase related phenomena in nanostructures
- since 2001: magnetism of surfaces and nanostructures on surfaces
- 2001 – 2005: magnetic semiconductors
- 2001 – 2002: Magnetic Casimir effect
- since 2000: exchange interactions and Curie temperature in bulk and layered magnetic materials
- since 1999: anomalous Hall effect
- 1999: micromagnetism of nanostructures
- since 1996: spin-electronics
- 1994 – 1998: quantum size effects in magneto-optics
- 1991 – 1997: interlayer exchange coupling
- 1989 – 1992: thermodynamics of two-dimensional ferromagnets
- 1986 – 1991: magnetization reversal processes in ultrathin films
- 1986 – 1991: magnetic anisotropy in ultrathin films

Scientific publications and communications

- 14 review papers and contributions to books;
- 165 original publications in scientific journals, of which 2 papers selected in the "Hot Papers in Physics" of the Institute of Scientific Information (selection of the 10 most cited papers in physics for a period of 2 months). These publications totalize more than 3000 citations, 13 of them exceeding 100 citations.
- 142 invited conferences (of which 3 plenary papers)

Conference organization

- Workshop on Magnetic Nanostructures, Brasilia (Brazil), November 2005 (Director)
- W.E. Heraeus Summerschool on Spin-Electronics, Wittenberg (Germany), August 2005 (Co-Chair)
- Gordon Conference on Magnetic Nanostructures, Big Sky (USA), August 2004 (Chairman).
- Annual Meeting of the EU RTN "Computational Magneto-Electronics", Halle (Germany), October 2003 (Chairman).
- Gordon Conference on Magnetic Nanostructures, Il Ciocco (Italy), May 2002 (Vice-Chairman).
- Symposium on Spin-Electronics (Co-Chair), Halle (Germany), 3–6 July 2000;
- International Advisory Committee of the International Colloquium on Magnetic Films and Surfaces (since 1997);
- Winter school "Nanostructures Magnétiques", Aussois (France), 1995.

CV

Prof. Dr. Dieter Weiss

Professor of Physics
Born 1955

Institute of Experimental
and Applied Physics
University of Regensburg
Universitätsstraße 31
93053 Regensburg

Tel.: ++49 (0)941 943 3197

Fax: ++49 (0)931 943 3196

e-mail: dieter.weiss@physik.uni-regensburg.de

<http://www.physik.uni-regensburg.de/forschung/weiss/>



1982	'Diploma' in Physics at LMU München
1987	'Dr. rer. nat' at TU München with Prof. von Klitzing
1987-1990	Scientific employee at MPI für Festkörperforschung, Stuttgart
1990-1991	Consultant, Bell Communication Research (Bellcore) USA
1991-1995	Scientific employee at MPI für Festkörperforschung, Stuttgart
1993	'Habilitation' at Universität Stuttgart
1993	Otto-Klug-Price for Physics (www.otto-klung-weberbank-preis.de)
Since 1995	Professor of Physics (chair) at the University of Regensburg
1997-2005	Editor of Physica E: Low dimensional systems and nanostructures
09./10. 1998	Guest professor at NTT, Hon-Atsugi, Japan
1999-2001	Dean of the Faculty for Physics, Regensburg University
1999-2006	Spokesperson for DFG-Research Unit FOR 370 "Ferromagnet-semiconductor nanostructures"
Since 2004	Elected Member of the DFG Review Board "Condensed Matter"
Since 2004	Member of the Senate of the University of Regensburg
Since 2004	Member of the Scientific Advisory Board of the "Paul-Drude Institute for Solid State Electronics", Berlin
Since 2005	Spokesperson for DFG Collaborative Research Centre SFB 689 "Spin phenomena in reduced dimensions"

Research interests

Properties of nanopatterned ferromagnets, superconductors and semiconductors, transport in low-dimensional electronic systems (quantum Hall systems, mesoscopic physics), ferromagnet-semiconductor hybrid structures, ferromagnetic semiconductors, spintronics.