Curriculum Vitae Carola Meyer

Personal details

Title(s), first name, surname:	Dr. rer. nat. Carola Meyer
Date and place of birth:	09 June 1974, Hamburg
Nationality:	German

Contact

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Master's ('Diplom')

University/College of higher education:	University of Hamburg (1993-96) University of Oldenburg (1996-00)
Date:	May 2000 (very good)
Supervisors:	Dr. T. Unold, Prof. Dr. G.H. Bauer
Title of thesis:	*Ladungsträgertransport in C_{60} Dünnschichten* *(Charge carrier transport in C_{60} thin films)*

Doctorate

University/Institute:	Freie-Universität Berlin/ Hahn-Meitner Institute Berlin
Date:	November 2003 (magna cum laude)
Supervisors:	Prof. Dr. A. Weidinger, Prof. Dr. M. Lux-Steiner
Title of thesis:	*Endohedral fullerenes for quantum computing*

Work experience since graduating

present position:

Tenure track (tenured) in the Electronic Properties Group (Prof. Schneider), Institute for solid state research (IFF) at Research Centre Jülich
(1.0 fte; since 09/05)

past positions:

Visiting scientist at TU-Delft, group Prof. Kouwenhoven (from 09/05-12/05)

Postdoc with Prof. Kouwenhoven at Delft University of Technology
(1.0 fte; temporary position from 03/04-09/05)

Research assistant in the molecular electronics group at Hahn-Meitner Institute
(1.0 fte; temporary position from 09/03-03/04)

Research interests

Quantum transport, Quantum information processing in solid state,
Optical and structural characterization of single carbon nanotubes and peapods,
Combination of molecules and solid state devices

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List of Publications

International (refereed) journals

1. Conductivity transients in C_{60} fullerene thin films
   T. Unold, C. Meyer and G. H. Bauer
   Synthetic Metals **121** (2001) 1179-1180.
2. Concept for Quantum Computing with $N@C_{60}$
   W. Harneit, M. Waiblinger, C. Meyer, K. Lips, A. Weidinger
   in *Fullerenes for the New Millennium XI*, K.M. Kadish, P.V. Kamat, D. Guldi (eds.), The Electrochemical Society (Pennington, 2001) 358.
3. Electron Spin Quantum Computing with $N@C_{60}$
   C. Meyer, W. Harneit, M. Waiblinger, K. Lips, A. Weidinger
   AIP Conference Proceedings **591** (2001) 101-104.
4. Electron Spin Quantum Computing With Endohedral Fullerenes
   W. Harneit, M. Waiblinger, K. Lips, C. Meyer, A. Weidinger, J. Twamley
   in *Experimental Implementation of Quantum Computation*, R.G. Clark (ed.), Rinton Press (Princeton, 2001), 38.
5. Alignment of the Endohedral Fullerenes $N@C_{60}$ and $N@C_{70}$ in a Liquid Crystal Matrix
   C. Meyer, W. Harneit, K. Lips, A. Weidinger, P. Jakes, K.P. Dinse
   Physical Review A **65**, 061201 (2002).
6. Electron Paramagnetic Resonance Investigation of Endohedral Fullerenes $N@C_{60}$ and $N@C_{70}$ in a Liquid Crystal
   P. Jakes, N. Weiden, R.-A. Eichel, A. Gembus, K.-P. Dinse,
   C. Meyer, W. Harneit, A. Weidinger
   Journal of Magnetic Resonance **156**, No. 2, 303-308 (2002).
7. Architectures for a spin quantum computer based on endohedral fullerenes
   W. Harneit, C. Meyer, A. Weidinger, D. Suter, J. Twamley
   Phys. stat. sol. (b) **233**, No. 3, 453-461 (2002).
8. Towards a molecular electron spin quantum computer
   C. Meyer, W. Harneit, K. Lips, A. Weidinger, P. Jakes, K.P. Dinse
   Phys. stat. sol. (b) **233**, No. 3, 462-466 (2002).
9. Purification and Optical Spectroscopy of $N@C_{60}$
   P. Jakes, K.-P. Dinse, C. Meyer, W. Harneit, A. Weidinger
   PCCP: Physical Chemistry Chemical Physics **5**, 4080-4083 (2003).
10. $N@C_{60}$ and $P@C_{60}$ as qubits
    C. Meyer, K. Lips, B. Naydenov, W. Harneit
    Applied Magnetic Resonance **27**, 123-132 (2004).
11. Synthesis and Functionalization of Fullerenes Encapsulating Atomic Phosphorus
    M. Scheloske, B. Naydenov, C. Meyer, W. Harneit
    Israel Journal of Chemistry **46**, 407 (2006).
12. Excited State Spectroscopy in Carbon Nanotube Double Quantum Dots
    S. Sapmaz, C. Meyer, P. Beliczynski, P. Jarillo-Herrero, L. P. Kouwenhoven
    Nano Letters **6**, 1350-1355 (2006) – web release: March 28, 2006.
13. Photon –assisted tunneling in a carbon nanotube quantum dot

C. Meyer, J. M. Elzerman, L. P. Kouwenhoven
Nano Letters **7**, 295 (2007) – web release: January 18, 2007.

14. Oxidation induced shifts of Raman modes of carbon nanotubes
C. Spudat, C. Meyer, C. M. Schneider
Phys. stat. sol. (b) **245**, 2205 (2008).

15. Defects induced on CVD carbon nanotubes during peapod synthesis on substrates
C. Meyer, C. Spudat, L. Houben, C. M. Schneider
Nanotechnology **20**, 065603 (2009).

16. CVD Growth of Carbon nanotubes using molecular nanoclusters as catalyst
K. Goss, A. Kamra, C. Spudat, C. Meyer, P. Kögerler, C. M. Schneider
Phys. stat. sol. (b) **246**, 2498 (2009)

17. Peapod synthesis depending on the number of nanotube sidewalls
C. Spudat, C. Meyer, K. Goss, and C. M. Schneider
Phys. stat. sol. (b) **246**, 2494 (2009)

Books

Chapter "Quantum computing with semiconductor quantum dots" in
Spintronics – From GMR to Quantum Information, St. Blügel, D. Bürgler, M. Morgenstern, C. M. Schneider, R. Waser (eds.), Forschungszentrum Jülich (2009).

Invited lectures

1. *Spin Quantencomputer*
Deutsche Physikerinnentagung 2001, Dresden.

2. *Spin Quantum Computing*
European Graduate College "*Interference and Quantum Applications*", Institute for Quantum Optics, Hannover (Jan. 2002).

3. *Electron Spin Quantum Computing*
Graduate College *"Materialeigenschaften und Konzepte zur Quanteninformationsverarbeitung"*, Universität Dortmund (Feb. 2002).

4. *Quantencomputing – eine Einführung*
Seminarvortrag, Universität Oldenburg (Juli 2002).

5. *Quantencomputer – Rechnen mit Atomen*
Tag der Forschung 2003, Fachhochschule Harz, Wernigerode (26.11.2003).

6. *Quantum transport in single wall carbon nanotubes*
Seminar, ISG Research Centre Jülich (03.11.2004).

7. *Quantencomputing mit Quantendots*
Deutsche Physikerinnentagung 2004, Aachen (05.11.2004).

8. *Spins, qubits and carbon nanotubes*
Symposium Spin&Qubit, Niels-Bohr Institute, Copenhagen (16.06.2005).

9. *Spin dependent transport in paramagnetic peapods*
Workshop Molecular Spintronics, Freie Universität Berlin (12.12.2005).

10. *Quantum transport in carbon nanotubes*
Seminar, Applied Physics, Univeristät Tübingen (30.01.2007).

11. *Quantum transport in carbon nanotubes*
Workshop Molecular Spintronics, Freie Universität Berlin (16.04.2007).

12. *Carbon nanotube peapods for electronic transport measurements*
Workshop on Carbon-based Quantum Computing, Freie Universität Berlin (14.03.2008).

13. *Carbon nanotube peapods for spintronics*
Nanoelectronics Days, Aachen (16.05.2008).

14. *Carbon nanotube peapods for transport measurements*
Seminar, TARA-Centre, University of Tsukuba, Japan (25.02.2009).

15. *Carbon nanotube peapods for transport measurements*
Workshop "Spintronics", JAIST, Ishikawa, Japan (26.02.2009).

Contributed talks

1. *Ladungsträgertransport in C_{60} Dünnschichten*
Deutsche Physikerinnentagung, München (18.11.2000).

2. *N@C_{60} and P@C_{60} as molecular qubits*
International conference on solid state quantum information processing, Amsterdam (17.12.03).

3. *Quantum transport in single-walled carbon nanotubes*
DPG Frühjahrstagung, Berlin (07.03.2005).

4. *Photon-assisted tunneling in a carbon nanotube quantum dot*
Nanoelectronics Days, Aachen (11.10.2006).

5. *Photon-assisted tunneling in a carbon nanotube quantum dot*
Deutsche Physikerinnentagung, Berlin (04.11.2006).

6. *Raman spectroscopy on individual carbon nanotubes*
Deutsche Physikerinnentagung, Frankfurt (07.11.2009)

Teaching experience

- Lecture "Experimentelle Grundlagen der Quanteninformation"
- Set-up of a new experiment for the "Fortgeschrittenenpraktikum" (advanced laboratory course) including the supervision of the students
- Lecture "Quantum computing with semiconductor quantum dots" (IFF spring school 2009)
- Supervision of seminars for advanced students
- Supervision of undergraduate students during lab projects
- Supervision of schoolchildren (Girls' Day, Jugend forscht, etc.)

Supervision of theses

Christian Spudat	(PhD student since 12/06)
Karin Goss	(PhD student since 07/08)
Cate Morgan	(PhD student since 05/09)
Robert Frielinghaus	(PhD student since 01/10)

Steffen Wegscheider (Diploma student 01/09-01/10)

Fabian Knorr (Bachelor student 04/09-07/09)

Third-party funds

- Project leader within the DFG-Forschergruppe “Coherence and relaxation properties of electron spins”
- Funds acquired from the “Impuls und Vernetzungsfonds” of the Helmholtz Society (“Ultraschnelle Spindynamik in Ferromagneten und Quantensystemen”): **164 000 €.**