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Publications 2009-2010

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[102] V. Umansky, M. Heiblum, Y. Levinson, **J. Smet**, J. Nübler, M. Dolev, *"MBE growth of ultra-low disorder 2DEG with mobility exceeding* 35×10^6 cm^2/Vs*"*, J. Cryst. Growth **311**, 1658 (2009).

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[104] B. Krauss, T. Lohmann, D.-H. Chae, M. Haluska, K. von Klitzing, **J. H. Smet**,*"Laser-induced disassembly of a graphene single crystal into a nanocrystalline network"*, Phys. Rev. B **79**, 165428 (2009).

[105] I. V. Kukushkin, **J. H. Smet**, V. W. Scarola, V. Umansky, K. von Klitzing, *"Dispersion of the excitations of fractional quantum Hall states"*, Science **324**, 1044 (2009).

[106] J. Martin, N. Akerman, G. Ulbricht, T. Lohmann, K. von Klitzing, **J. H. Smet**, A. Yacoby, *"The nature of localization in graphene under quantum Hall conditions"*, Nature Physics **5**, 669 (2009).

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[109] A. Schwagmann, Z.-Y. Zhao, F. Ospald, **J. H. Smet**, H. Lu, D. C. Driscoll, M. P. Hanson, A. C. Gossard, *"Terahertz emission characteristics of ErAs:InGaAs-based photoconductive antennas excited at 1.55* μm*"*, Appl. Phys. Lett. **96**, 141108 (2010).

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[111] I. Gierz, T. Suzuki1, R. T. Weitz, D.-S. Lee, B. Krauss, C. Riedl, U. Starke, H. Höchst, **J. H. Smet**, C. R. Ast, K. Kern, *"Electronic decoupling of an epitaxial graphene monolayer by gold intercalation"*, Phys. Rev. B **81**, 235408 (2010).

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[114*] B. Krauss, P. Nemes-Incze, V. skakalova, L. P. Biro,K. von Klitzing, **J. H. Smet**, *"Raman scattering at pure graphene zigzag edges"*, Nano Letters **10**, 4544 (2010).

Publications 2011-

[115*] S. I. Dorozhkin, L. Pfeiffer, K. West, K.von Klitzing, **J. H. Smet**, *"Random telegraph signals in a microwave exposed two-dimensional electron system"* , Nature Physics **7**, 336 (2011).

[116] J. C. Meyer, S. Kurasch, H. J. Park, V. Skakalova, D. Künzel, A. Groß, A. Chuvilin, G. Algara-Siller, S. Roth, T. Iwasaki, U. Starke, **J. H. Smet**, U. Kaiser, *"Experimental analysis of charge redistribution due to chemical bonding by high resolution transmission electron microscopy"*, Nature Materials **10**,209 (2011).

[117] D. H. Chae, T. Utikal, S. Weisenburger, H. Giessen, K. von Klitzing, M. Lippitz, **J. Smet**, *"Excitonic Fano Resonance in Free-Standing Graphene"*, NANO Letters **11**, 1379 (2011).

[118] T. Iwasaki, H. J. Park, M. Konuma, D. S. Lee, **J. H. Smet**, U. Starke, *"Long-Range Ordered Single-Crystal Graphene on High-Quality Heteroepitaxial Ni Thin Films Grown on MgO(111)"*, NANO Letters **11**, 79 (2011).

[119] I. V. Kukushkin, V. Umansky, K. von Klitzing, **J. H. Smet**, *"Collective Modes and the Periodicity of Quantum Hall Stripes",* Phys. Rev. Lett. **106**, 206804 (2011).

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[122] J. Nuebler, B. Friess, V. Umansky, B. Rosenow, M. Heiblum, K. von Klitzing, **J. Smet**, *"Quantized $\nu = 5/2$ State in a Two-Subband Quantum Hall System"*, Phys. Rev. Lett. **108**, 046804 (2012).

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[124] D. Maryenko, F. Ospald, K. von Klitzing, J.H. Smet, J.J. Metzger, R. Fleischmann, T. Geisel, V. Umansky, *"How branching can change the conductance of ballistic semiconductor devices"* Phys. Rev. B **85**, 195329 (2012).

[125] S. Kurasch, J. Katokoski, O. Lehtinen, V. Skakalova, J.H. Smet, C.E. Krill, A.V. Krashennikov, V. Arkady, U. Kaiser, Nano Lett. **12**, 3168-3173 (2012).

Invited Conference Talks 1996-2000

July 1996

Adriatico Research Conference on "The Electron Quantum Liquid in Systems of Reduced Dimensions", International Center for Theoretical Physics, Trieste, Italy, *"Magnetic focusing of composite fermions through cavity arrays"*.

May 1997

Workshop on the Quantum Hall Effect at the Institute of Scientific Interchange, Torino, Italy, *"Composite fermions in experiment"*.

August 1997

International Workshop on Novel Physics in Low Dimensional Systems, Dresden, Germany, *"Enhanced soft wall effects for composite fermions in magnetic focusing and commensurability experiments"*, Physica E **1**, 153-159 (1997).

August 1997

Symposium on "Quantum Hall Effect - Skyrmions and Composite Fermions", 16th General Conference of the European Physical Society Condensed Matter Division, Leuven, Belgium, *"Ballistic transport of composite fermions in semiconductor nanostructures"*.

September 1997

The 12th International Conference on the Electronic Properties of Two-Dimensional Systems, Tokyo, Japan, *"Detection and analysis of composite fermions in magnetic focusing and commensurability experiments"*, Physica B **249-251**, 15-22 (1998).

September 1998

The sixth Petra School of Physics on "Physics of Low Dimensional Systems", Center for Theoretical and Applied Physical Sciences, Yarmouk University, Irbid, Jordan.

October 1998

Physical Phenomena at High Magnetic Fields - III, Tallahassee, USA, *"dc-transport of composite fermions in weak periodic potentials"*.

March 1999

The 4th International Symposium on Advanced Physical Fields, Tsukuba, Japan, *"Composite fermions in weak periodic potentials"*.

March 1999

Symposium on the Quantum Hall Effect, March Meeting of the German Physical Society, Münster, Germany, *"Periodic density modulations for composite fermions: evidence of flux attachment"*.

July 1999

The first Stig Lunqvist Research Conference on the Advancing Frontiers of Condensed Matter Physics: "Quantum phases in electron systems of low dimensions", ICTP, Trieste, Italy.

October 1999

Wilhelm-Else-Heraeus Seminar on Electron Transport in Reduced Dimensions - Concepts and Reality, Physikzentrum Bad Honnef, Germany, *"Commensurate composite fermions in weak periodic electrostatic potentials: direct evidence of a periodic effective magnetic Field"*.

Invited Conference Talks 2000-2003

January 2000

Seminar of the European Science Foundation on Strongly Correlated Electron Systems, Cambridge, UK, *"Periodic electrostatic modulation at filling factor 1/2: composite fermions moving in a fictitious periodic magnetic field"*.

September 2001

Workshop on "Quantum Hall Systems", Gedern (Hessen), Germany, *"Ising ferromagnetism in the fractional quantum Hall regime"*.

October 2001

Physics School on "Electronic Nanostructures" of the German Physical Society, Bad Honnef, Germany, *"The fractional quantum Hall effect: don't waste zeroes!"* and *"Composite fermions in experiment"*.

November 2001

The 5th International Symposium of New Phenomena in Mesoscopic Structures, Hawaii, *"The enhanced electron-nuclear spin interaction at the 2/3-Ising ferromagnetic phase transition as a spectroscopy tool for low-energy and gapless collective excitations"*.

December 2001

International Symposium on "Quantum-Hall-Effect and Heterostructures", 266. Wilhelm und Else Heraeus Seminar, Universität Würzburg, Germany, *"Ising ferromagnetism in the fractional quantum Hall regime"*.

February 2002

The 12th International Winterschool on New Developments in Solid State Physics, Low Dimensional Systems: From 2D Systems to Molecules, Mauterndorf, Austria, *"Monitoring electron-nuclear spin interactions with an Ising fractional quantum Hall ferromagnet"*.

March 2002

March Meeting of the German Physical Society, Regensburg, Germany, *"Monitoring electron-nuclear spin interactions with an Ising fractional quantum Hall ferromagnet"*.

March 2002

Symposium on Spin and Pseudospin in Quantum Hall Systems, APS March Meeting, Indianapolis, USA, *"Quantum Hall ferromagnets"*.

July 2002

The 26th International Conference on the Physics of Semiconductors, Edinburgh, UK, *"Eavesdropping on spin-talk: resistively monitoring electron-nuclear spin interactions in a 2D-electron system"*

July 2002

The second International Conference on the Physics and Applications of Spin related Phenomena in Semiconductors, Würzburg, Germany, *"Eavesdropping on spin talk: resistively monitoring the electron-nuclear spin dynamics in a 2D-electron system"*.

February 2003

Edgar-Lüscher physics seminar, Bad Serneus, Switzerland, *"The composite fermion description of the fractional quantum Hall effect: experiment"*.

March 2003

Plenary Talk at the Spring Meeting of the German Physical Society, Dresden, Germany, *"Composite fermions — the quasi-particle concept at its best"*.

April 2003

Symposium on Semiconductor Spintronics II, MRS Spring Meeting, San Francisco, USA *"Resistively monitoring and electrically manipulating electron-nuclear spin interactions in a 2D-electron systems"*.

Invited Conference Talks 2003-2006

June 2003

32nd International School on the Physics of Semiconducting Compounds, Jaszowiec, Poland, *"The composite fermion description of the fractional quantum Hall effect — the quasi-particle notion at its best"*.

June 2003

1st Summer School on Theoretical and Computational Materials Science, International Max-Planck Research School, Stuttgart, Germany, *"The fractional quantum Hall effect: don't waste zeroes!"*.

July 2003

The VIIth International Symposium on Research in High Magnetic Fields, Toulouse, France, *"Nuclear magnetometry in a 2D-electron system based on spin-related phase transition physics"*.

July 2003

The 15th International Conference on the Electronic Properties of Two-Dimensional Systems, Nara, Japan, *"Nuclear magnetometry in a two-dimensional electron system based on spin-related phase transition physics"*.

April 2004

Quantum Transport Symposium, the 4th Conference on Condensed Matter and Material Physics (CMMP04), Warwick, UK, *"Resistively monitoring electron spin-nuclear spin interactions in a two-dimensional electron system"*.

August 2004

The 16th International Conference on High Magnetic Fields in Semiconductor Physics (SEMIMAG 16), Tallahasee, USA, *"The quantized Hall conductance unveils Hofstadter's fractal energy spectrum"*.

December 2004

The 5th International Conference on Low-Dimensional Structures and Devices, Cancun, Mexico, *"Superlattices of self-assembled ErAs-islands for the generation of Terahertz pulses"*.

June 2005

The 13th International Symposium on Nanostructure Physics and Technology, St. Petersburg, Russian Federation, *"The generation of terahertz electrical pulses in superlattices of self-assembled ErAs-Islands."*

June 2005

Advanced Research Workshop on Fundamentals of Electronic Nanosystems, St. Petersburg, Russian Federation, *"Recent progress on microwave induced magnetoresistance phenomena"*.

July 2005

Emergent Phenomena in Quantum Hall Systems, Taos, USA, *"Recent progress on microwave induced magnetoresistance phenomena"*.

January 2006

International Conference Nanoelectronics 2006, Lancaster University, UK, *"Polarization dependence and local probe studies of the microwave induced zero resistance in a two-dimensional electron system"*.

February 2006

The 14th International Winterschool on New Developments in Solid State Physics: Charges and Spins in Nanostructures, Mauterndorf, Austria, *"Circular-polarization-dependent study of the microwave induced magnetoresistance oscillations in the 2D electron system"*.

Invited Conference Talks 2006-2009

March 2006

Symposium on New Phenomena in Edge Transport in QHE-Systems, March meeting of the German Physical Society, Dresden, *"The detection and spectroscopy of millimeter wave radiation based on the interference of edge magnetoplasmons"*.

July 2006

The 17th International Conference on the Application of High Magnetic Fields in Semiconductor Physics, Würzburg, *"Current induced reordering of the electron liquid crystal phases in the 2D electron system"*.

October 2006

International workshop on interactions, excitations and broken symmetries in quantum Hall systems, Dresden, *"The dispersion of the composite fermion cyclotron resonance mode"*.

February 2007

Workshop on the Quantum Hall Effect, International Center of Condensed Matter Physics, Brasilia, *"The dispersion of the composite fermion cyclotron resonance mode"* and *"Current induced reordering of the electron liquid crystal phases in the 2D electron system"*.

June 2007

233 PTB Seminar on the Physics at Ultra-Low Temperatures, Berlin, *"Fractional Quantum Hall Effect - Colder is Hotter"*.

June 2007

International Workshop on Emergent Properties of Quantum Hall Systems-2, Pennsylvania State University, *"Finite wave vector spectroscopy of excitations in the fractional quantum Hall regime"*.

July 2007

International Conference on the Electronic Properties of Two-dimensional Systems 17, Genova, *"Finite wave vector spectroscopy of correlated 2D electrons"*.

November 2007

Bavarian Elite Course in Physics, University of Regensburg, *"The fractional quantum Hall effect in a nutshell and its relevance for topological quantum computation"*.

February 2008

15th International Winterschool on New Developments in Solid State Physics, *"Finite wavevector spectroscopy of correlated 2D electrons"*, Mauterdorf.

June 2008

Conference on Quantum Phases and Excitations in Quantum Hall Systems, *"Evidence for Localized Minority Spins in the Half-filled Lowest Landau Level"*, Dresden.

March 2009

Symposium on Transport in Graphene, March Meeting of the German Physical Society, *"Localization in graphene under quantum Hall conditions"*, Dresden.

April 2009

Wilhelm and Else Heraeus Seminar on Microwaves in Condensed Matter Physics, *"Microwave explorations of electrons in flatland"*, Bad Honnef.

June 2009

Symposium on carbon nanotubes and graphene low dimensional carbon structures, *"The nature of localization in graphene under quantum Hall conditions"*, E-MRS Spring meeting, Strasbourg, France.

Invited Conference Talks 2010-

March 2010

APS March meeting, Symposium composite fermions, *"Collective mode dispersions of fractional quantum Hall states"*, Portland, Oregon.

March 2010

DPG Spring Meeting, Keynote presentation, *"Dispersion of the collective excitations of fractional quantum Hall states"*, Regensburg.

April 2010

International Workshop on the Quantum Hall Effect at 30 Years, *"Time dependent studies on a microwave exposed two-dimensional electron system"*, University of Minnesota, Minnesota, IN.

June 2010

International Workshop on Interactions, Disorder, and Topology in Quantum Hall Systems, *"Time dependent studies on a microwave exposed two-dimensional electron system"*, Dresden.

July 2010

30th International Conference on the Physics of Semiconductors, *"Dispersion of the collective excitations of fractional quantum Hall states"*, Seoul, Korea.

September 2010

5th Symposium on Vacuum based Science and Technology, *"Marvellous Prospects for Graphene"*, Kaiserslautern.

April 2011

APCTP Conference on Localization 2011, *"Quantum Hall effect in twisted bilayer graphene"*, Pohang, South Korea.

September 2011

International Conference on Graphene Nanostructures, *"Quantum Hall effect in twisted bilayer graphene"*, KITP UCSB, Regensburg, Germany.

January 2012

Fundamental aspects of graphene and other carbon allotropes, *"Localization and current fluctuations in graphene"*, KITP UCSB, Santa Barbara, USA.

Febuary 2012

17th International Winterschool on New Developments in Solid State Physics, *"Localization and current fluctuations in graphene"*, Mauterndorf, Austria.

March 2012

APS March Meeting, Focus Session: Graphene Structure, Stacking, Interactions: Mesoscopics, *"Conductance fluctuations in graphene as a probe of broken symmetry and fractional quantum Hall states"*, Boston, USA.

April 2012

Graphene Conference 2012, Brussels, Belgium.

June 2012

Advanced Research Workshop MESO 2012, Non-equilibrium and coherent phenomena at the nanoscale, *"Probing interaction induced quantum Hall states in graphene"*, Chernogolovka, Russia.

June 2012

8th Advanced Research Workshop on Fundamentals of Electronic Nanosystems, Nanopeter 2012, *"Transconductance fluctuations as a probe of interaction induced quantum Hall states in graphene"*, St. Petersburg, Russia.

September 2012

EMRS, Warsaw, Poland.