July 10, 2017

CURRICULUM VITAE

Gordon Walter Semenoff

Department of Physics and Astronomy, University of British Columbia,
Vancouver, British Columbia, V6T 1Z1 Canada

1 *Education*

- B.Sc. from the University of Alberta, 1976, with first class Honors in Physics.
- Ph.D. from the University of Alberta, 1981, in Theoretical Physics
  Thesis: Extended Structures in Quantum Field Theory
  Supervisor: H. Umezawa, Killam Memorial Professor of Physics, University of Alberta

2 *Employment*

Currently: **Professor of Physics, University of British Columbia**

- Distinguished Professor, International Institute of Physics, Natal, Brazil.
- Associate of the Perimeter Institute, Waterloo, Ontario 2002-present.
- July, 1990- present, Professor of Physics, Department of Physics, University of British Columbia.
- July, 1988- June, 1990, Associate Professor of Physics, Department of Physics, University of British Columbia.
- July 1, 1988, Granted Tenure at the University of British Columbia
- July, 1986- June, 1988, Assistant Professor of Physics, Department of Physics, University of British Columbia.
- July, 1983- June, 1986 University Research Fellow, Department of Physics, University of British Columbia.
- Sept.1982-Jun.1983: Postdoctoral Fellow, Center for Theoretical Physics, Massachusetts Institute of Technology.
- Sept.1981-Apr.1982: Lecturer, Department of Physics, University of Alberta.
- May 1981-Aug.1982: Postdoctoral Fellow, Institute for Theoretical Physics, University of Alberta.

3 *Leaves of absence and visiting fellowhsips*

- Sponsored visit, Michigan Center for Theoretical Physics, University of Michigan, Ann Arbor, September 8-September 14, 2017.
- Distinguished Professor, International Institute of Physics, Natal, Brazil, November 1 - November 31, 2013.
- Velox Professor, Niels Bohr Institute, University of Copenhagen, October 1 - December 31, 2012.
- November 1 - November 30, 2011, Visiting Professor, Institut Henri Poincaré, Paris, France
- December 1 - December 31, 2008, Visiting Professor, University of Tours, France
- October 15 - November 15, 2007, Senior College Fellowship, Isaac Newton Institute, Cambridge, U.K.
- November 20 - December 24, 2006, Visiting Professor, Institut des Hautes Etudes Scientifiques, Bures sur Yvette, France.
- October 1 - November 30, 2005, Visiting Professor, Institut des Hautes Etudes Scientifiques, Bures sur Yvette, France.
- October 1, 2000 - November 30, 2000, Visiting Professor, Institut Henri Poincare, Paris.
- July 1, 2000 - August 31, 2000, Visiting Professor, Niels Bohr Institute, Copenhagen, Denmark.
- May 1, 2000 - June 31, 2000, Visiting Professor, Uppsala University, Uppsala, Sweden.
- January 1, 2000 - May 31, 2000, Member, Institute for Advanced Study, Princeton, New Jersey
- January 1, 1999 - June 31, 1999, Visiting Professor, Niels Bohr Institute, Copenhagen, Denmark
- May 1, 1990-May 1, 1991, Nordita Professor, Niels Bohr Institute, Copenhagen and Institute for Theoretical Physics, Helsinki. (Most of this time was canceled for personal reasons.)
- November 1 - December 1, 1989, Japan Society for the Promotion of Science Fellow, Hokkaido University, Japan
- June 1, 1985 - December 31, 1985, Member, Institute for Advanced Study, Princeton, New Jersey.
- June 1, 1984 - December 31, 1984, Member, Institute for Advanced Study, Princeton, New Jersey.

4 *Academic Awards and Distinctions*

- Jacob Bieley Prize, University of British Columbia, April, 2013.
- Officer of the Order of Canada, July 1, 2012.
- Lifetime Achievememt Award of the Canadian Association of Physicists, 2012.
- Doctor of Science, Honoris Causa, University of Lethbridge, Canada, Conferred June 2, 2011.
- Brockhouse Medal for Achievement in Condensed Matter and Material Physics (Canadian Association of Physicists) 2010.
- Majorana Prize (presented by Electronic Journal of Theoretical Physics) 2007.
- Fellow of the Royal Society of Canada since 2000
- CAP/CRM Prize in Theoretical and Mathematical Physics 2000
- MacDowell Medal for Achievement in Physics, 1991 (Gold Medal).
- Japan Society For the Promotion of Science Fellow, 1989
- Killam Research Prize, 1989 (20,000 Canadian Dollars).
- NSERC University Research Fellowship, 1983
- NSERC Postdoctoral Fellowship, 1982
- Alberta Graduate Fellowship 1980-1981.
- NSERC Postgraduate Fellowship 1976-1980.

5 *Service*

- Chair, Evaluation Committee, Institute for Basic Science (Korea)
- International Advisory Board, Quantum Theory and Symmetries-XI, Montreal, 2019.
- Chair of Canadian Association of Physicists Herzberg Medal Selection Committee 2016.
- University of British Columbia Faculty Research Awards Committee 2016, 2017.
- Scientific Advisory Board of the Banff International Research, Station for Mathematical Innovation and Discovery, 2012-2017
- Member of "Panel of Experts", review of Nordita for the Nordic Council of Ministers, Stockholm, Sweden.
- Editorial Board of The Philosophical Transactions of the Royal Society, U.K., 2013-2019
- International Advisory Board of the Ukrainian Journal of Physics.
- Editorial Board of World Scientific Journal.

- Referee for research grant applications to NSERC of Canada, U.S. National Science Foundation, Netherlands Federal Research Fund, European Science Foundation, INFN of Italy, Commission Recherches de France, Denmark Research Council.

6 *Highly Cited Publications*

- G. W. Semenoff, "Condensed Matter Simulation Of A Three-Dimensional Anomaly," Phys. Rev. Lett. **53**, 2449 (1984).
- A. J. Niemi and G. W. Semenoff, "Axial Anomaly Induced Fermion Fractionization And Effective Gauge Theory Actions In Odd Dimensional Space-Times," Phys. Rev. Lett. **51**, 2077 (1983).
- A. J. Niemi and G. W. Semenoff, "Fermion Number Fractionization In Quantum Field Theory," Phys. Rept. **135**, 99 (1986).
- A. J. Niemi and G. W. Semenoff, "Thermodynamic Calculations In Relativistic Finite Temperature Quantum Field Theories," Nucl. Phys. B **230**, 181 (1984).
- A. J. Niemi and G. W. Semenoff, "Finite Temperature Quantum Field Theory In Minkowski Space," Annals Phys. **152**, 105 (1984).
- R. L. Kobes, G. W. Semenoff and N. Weiss, "Real Time Feynman Rules For Gauge Theories With Fermions At Finite Temperature And Density," Z. Phys. C **29**, 371 (1985).
- J. K. Erickson, G. W. Semenoff and K. Zarembo, "Wilson loops in N = 4 supersymmetric Yang-Mills theory," Nucl. Phys. B **582**, 155 (2000) [arXiv:hep-th/0003055].
- N. Beisert, C. Kristjansen, J. Plefka, G. W. Semenoff and M. Staudacher, "BMN correlators and operator mixing in N = 4 super Yang-Mills theory," Nucl. Phys. B **650**, 125 (2003) [arXiv:hep-th/0208178].
- C. Kristjansen, J. Plefka, G. W. Semenoff and M. Staudacher, "A new double-scaling limit of N = 4 super Yang-Mills theory and PP-wave strings," Nucl. Phys. B **643**, 3 (2002) [arXiv:hep-th/0205033].
- G. W. Semenoff, V. Semenoff, Fei Zhou, "Domain Walls in Gapped Graphene", Phys. Rev. Lett. **101** 087204 (2008) [arXiv:0806.0094 [cond-mat.mes-hall]].
- G. W. Semenoff, "Canonical Quantum Field Theory with Exotic Statistics," Phys. Rev. Lett. **61**, 517 (1988).
- G. W. Semenoff and P. Sodano, "Exotic Spin And Statistics In (2+1)-Dimensional Canonical Quantum Field Theory," Nucl. Phys. B **328**, 753 (1989).
- ;G. W. Semenoff, P. Sodano and Y. S. Wu, "Renormalization of the statistics parameter in three-dimenisonal electrodynamics," Phys. Rev. Lett. **62**, 715 (1989).
- R. L. Kobes and G. W. Semenoff, "Discontinuities Of Green Functions In Field Theory At Finite Temperature And Density," Nucl. Phys. B **260**, 714 (1985).
- R. L. Kobes and G. W. Semenoff, "Discontinuities of Green Functions in Field Theory at Finite Temperature and Density. 2," Nucl. Phys. B **272**, 329 (1986).

7 *Seminars, Colloquia and Conference Presentations*

- Sept, 2019. "Challenges in theoretical high energy physics" Nordita Stockholm, Sweden
- Mar.4-5, 2019, Hooke Royal Society meeting "Topological Avatars of New Physics" Royal Society (UK) London, U.K., "On the gauge group of the Standard Model".
- Jul.30-Aug.3, 2018, 'Gauge/Gravity Duality 2018 Wuerzburg, Germany, "Entanglement and the infrared"
- Jun.12-Jun.17, 2018, PallaFest, Budapest, Hungary, "Entanglement and the Infrared"
- May.14-Jun.8, 2018, Correlation functions in solvable models Nordita Stockholm, Sweden
- Feb.17-Feb.24, 2018, Niels Bohr Institute, Copenhagen, Denmark, High Energy Physics Seminar, "Dynamical Violation of Scale Invariance in a Cold Fermi Gas"
- Feb.4-Feb.12, 2018, Julian Schwinger Centennial Conference and Workshop Singapore "Entanglement and the infrared" "
- Nov.25-Dec.15, 2017, Laces 2017- Lezioni Avanzate di Campi E Stringhe Galileo Galilei Institute Florence, Italy Pedagogical Lecture Series: "The Holographic Way"
- Oct.8-Oct.14, 2018, University of Michigan, Ann Arbor, Michigan "The infrared catastrophe, there just aint no cure"
- Aug.14-Aug.18, 2017, Gravity: Past, Present and Future Vancouver, Canada Invited talk: "Infrared quantum gravity"
- Aug.14-Aug.18,2017, 6th International Conference on New Frontiers in Physics (ICNFP 2017) Orthodox Academy of Crete, Kolumbari, Greece Planary talk: "Infrared quantum information"
- Aug.7-Aug.11, 2017, Niels Bohr Institute, Copenhagen, Denmark High Energy Theoretical Physics Seminar "Infrared quantum information"
- Jun.20-Jun.23 2017, Moedal Collaboration Meeting Bologna, Italy
- Apr.1.-Apr.3, 2017, Editorial Board Meeting, Philosophical Transactions of the Royal Society London, U.K.
- Feb.22.-Feb.28, 2017, Nordita Stockholm, Sweden "Localization and Schwinger Pair production" "Electronic EPR and Teleportation in a Quantum Wire"
- Dec.17.-Dec.31, 2016, XII AVOGADRO MEETING on Strings, Supergravity and Gauge Theories Perugia, Italy
- Dec.9.-Dec.14, 2016, Moedal Collaboration Meeting Large Hadron Collider, CERN Geneve, Switzerland Session Chair
- Nov.5.-Nov.13, 2016, Rome, Italy
- Oct.22-Oct.29, 2016, "New trends in integrable models", International Institute for Physics, Natal, Brazil "One-point functions, an overview"

- Aug.27-Sept.3, 2016, "Integrability in quantum field and string theory", Humboldt University, Berlin "One-point functions, an overview"
- Aug.17-Aug.23, 2016, Paris, France
- Aug.3-Aug.9, 2016, "Conference on Interactions and Topology in Dirac Systems" Trieste, Italy
- Jun.28-Jun.29, 2016, "MOEDAL Group Meeting" Valencia, Spain
- Jun.4-Jun.14, 2016, Integrability: from statistical systems to gauge theories Les Houches, France "Introduction to the AdS/CFT Correspondence"
- Feb.23-Apr.30, 2015, "Current themes in holography" Neils Bohr Institute, Copenhagen, Denmark "Quantum Hallography"
- Apr.8-Apr.15, 2016, "Holography and dualities 2016" Nordita, Stockholm, Sweden
- Aug.1-21, 2015, International Institute for Physics Natal, Brazil
- Jul.12-30, 2015, "Holographic duality for condensed matter physics" KITPC, Beijing, China
- Jun.1-5, 2015, "eNLarge Horizons" Madrid, Spain
- April 23, 2015, Nordita, Stockholm
- April 13-17, 2015, "HoloGrav 2015" Galileo Galilei Institute, Florence, Italy
- April 13-30, 2015, "Holographic Methods for Strongly Coupled Systems" Galileo Galilei Institute, Florence, Italy
- Feb.12-Feb.19, 2015, The Niels Borh Institute Copenhagen, Denmark
- Dec.20-Jan.9, 2014, University of Perugia Perugia, Italy
- Nov.9-15, 2014, SFR Colloquium Berlin, Germany "Relativistic World of Graphene"
- Oct.23, 2014, Particle Theory Seminar University of Michigan Ann Arbor, Michigan "A study of holographic entanglement: the accelerated quark-anti-quark paradigm"
- Sept.8-14, 2014, Saalburg Summer School "Foundations and New Methods in Theoretical Physics" Wolfersdorf, Germany "Introduction to gauge-gravity duality"
- Sept.1-7, 2014, "Quantum Field Theory, String Theory and Condensed Matter Physics" Orthodox Academy Conference Center Kolymbari, Crete.
- Aug.18-20, 2014, "Quantum Engineering of States and Devices" Nordita, Stockholm, Sweden "Holographic Quantum Hall Ferromagnets"
- Aug.12-15, 2014, "Supersymmetric Field Theories" Nordita, Stockholm, Sweden "Holographic Accelerated Heavy Quark"
- Jul.14-18, 2014, "Strong and Electroweak Matter" Lousanne, Switzerland "Relativistic World of Graphene"

- Jun.18-21, 2014, MOEDAL experiment collaboration meeting CERN, Geneva, Switzerland
- May17-24, 2014, Public Lecture ARISTOTLE UNIVERSITY OF THESSALONIKI Thessaloniki, Greece "The Relativistic World of Graphene"
- Apr.10, 2014, Theoretical Physics Seminar Queen Mary College, London "Holographic Accelerated Heavy Quark"
- Apr.8-9, 2014, "Holographic Inhomogeneities" Amsterdam, Netherlands "Quantum coherence vs. chiral symmetry in a Holographic Double Monolayer"
- Feb.17-21, 2014, The Niels Bohr Institute Copenhagen, Denmark
- Jan.18-22, 2014, "Modern Developments in M-theory" Banff International Research Station for Mathematics and Innovation Banff, Alberta
- Dec.20, 2013, Theoretical Physics Seminar University of Perugia, Perugia, Italy "Quantum Hallography"
- Dec.18, 2013, Seminario Generale Physics Department, University of Perugia, Perugia, Italy "Relativistic World of Graphene"
- Dec.15-Jan.5, 2013, University of Perugia, Perugia, Italy
- Nov.27, 2013, Federal University of Pernambuco Recife, Brazil, Physics Department Seminar "Relativistic World of Graphene"
- Nov 23, 2013, "III Oficina Nacional de Teoria de Campos" Brasilia, Brazil "A Holographic Quantum Hall Effect"
- Nov.14, 2013, "Second Northeast String Meeting. Strings, Knots and Related Aspects" International Institute for Physics Natal, Brazil "Majorana Entanglement Bus"
- Nov.11, 2013, "Second Northeast String Meeting. Strings, Knots and Related Aspects" International Institute for Physics Natal, Brazil "EPR in AdS/CFT"
- Nov.6-8, 2013, Plenary Speaker XXXI Encontro de Fsicos do Norte e Nordeste Atividades de Pesquisa Campina Grande, Brazil "The Relativistic World of Graphene"
- Nov.5, 2013, International Institute for Physics Seminar Natal, Brazil "Quantum Hallography"
- Sept.15-22, 2013, Holography: From Gravity to Quantum Matter Isaac Newton Institute, Cambridge, U.K. "Quantum Hallography"
- Aug.22-Sept.4, 2013, 43'th ENS SUMMER INSTITUTE 2013 "STRINGS, PARTICLES AND THE UNIVERSE" Ecole Normale Superiore Paris "Quantum Hallography"
- Jul.29-Aug.2, 2013, Gauge/Gravity Duality 2013 Max Planck Institute for Physics Munich "Holographic Quantum Hall Effect"
- Jun.13-Jun.22, 2013, Holography 2013 APCTP Postech Pohang, Korea Plenary talk "Landau Levels and Incompressible States in Dense Holographic Matter"

- Jun.7, 2013, String Theory Seminar, University of Washington "Incompressible States in Dense Holographic Matter"
- May.22-May 25, 2013, "Intrinsic Decoherence in Nature" Galiano Island, British Columbia
- Apr.27-May 8, 2013, "Higher Spins, Strings and Duality" Galileo Galilei Institute for Theoretical Physics Florence, Italy
- Apr.9-Apr12, 2013, DAMTP Cambridge, U.K. String Theory Seminar "Landau levels and incompressible states in holographic dense matter"
- April 9, 2013, Kings College London, U.K. Theoretical Physics Seminar "Giant D5 Brane Holographic Hall State"
- APR.9-APR12, 2013, Imperial College London, U.K. String Theory Seminar "Landau levels and incompressible states in holographic dense matter"
- Feb.21-Feb. 22, 2013, String Theory Seminar Perimeter Institute, Waterloo, Ontario "Giant D5 Brane Holographic Quantum Hall States"
- Feb.20, 2013, Particle Theory Seminar University of Chicago Particle Theory Seminar "Holographic Quantum Hall States"
- Feb.18-Feb.13, 2012, University of Cincinnati, Cincinnati, Ohio Theoretical physics seminar "Holographic Quantum Hall States"
- Feb.11-Feb.15, 2013, Holography and Applied String Theory BIRS, Banff Presentation: "Holographic Quantum Hall States"
- —Dec.17-19, 2012, "Holography, gauge theory and black holes" Institute of Physics, University of Amsterdam Invited talk: "Holographic 3D Fermi Gas"
- Dec. 6, 2012, Chalmers University of Technology, Gothenburg, Sweden Physics Colloquium: "The Relativistic World of Graphene" String Theory Seminar: "String Theory Holography of 3D Semi-Metals"
- Nov.18-22, 2012, "Holography and Magnetic Catalysis of Chiral Symmetry Breaking" Dublin Institute for Advanced Study Trinity College, Dublin, Ireland Invited talk: "Magnetic Catalysis in Graphene"
- Nov.12-16, 2012, Doctoral School The Niels Bohr Institute Copenhagen, Denmark Lecture series: "Introduction to AdS/CFT"
- Nov. 9, 2012, Niels Bohr Institute Academy Colloquium The Niels Bohr Institute Academy Copenhagen, Denmark "The relativistic world of graphene"
- Oct.15-20, 2012, The Holographic Way, Nordita, Stockholm Invited talk: "The D3-D7 holographic dual of relativistic materials in (2+1)D"
- Sept.26, 2012, Physics Seminar, Reed College Portland, Oregon "The relativistic world of graphene"

- Jun.15, 2012, Canadian Association of Physicists Annual Congress Calgary, Alberta Plenary: "Graphene in the Holographic World"
- Jun.7-Jun.10, 2012, Theory Canada 7, Lethbridge, Alberta Invited talk: "Engineering Holographic Graphene"
- Jun.3-Jun.7, 2012, "Applications of Gauge-Gravity Duality" Technion, Haifa, Isreal Invited talk: "Engineering Holographic Graphene"
- May 20-May 24, 2012, "IIP-ICTP School on Gravity and String Theory" International Institute of Physics Federal University of Rio Grande do Norte Natal, Brazil Lecture Series: "Introduction to AdS/CFT"
- May 16-May 20, 2012, "Analogy and Duality in Physics" Seven Pines Institute, Minnesota Plenary: "Emergent Dirac Equation in Condensed Matter"
- May 1-May 31, 2012, "Mathematics and Applications of Branes in String and M-theory" program at the Isaac Newton Institute, Cambridge, U.K. "Engineering Hologaphic Graphene"
- Apr.23-27, "THE SIXTH INTERNATIONAL SCHOOL ON FIELD THEORY AND GRAVITATION-2012" Rio de Janeiro, Brazil, "Holographic Schwinger Effect", "Engineering Holographic Graphene"
- Apr.9, 2012, Nuclear and Particle Theory Seminar Massachusetts Institute of Technology, Cambridge MA "Engineering Holographic Graphene"
- Apr.10, 2012, Physics Colloquium, Boston University "What Can a Particle Physicist Learn from Graphene"
- Feb.20-25, 2012, "The Physics of Graphene", Kavli Institute for Theoretical Physics, Santa Barbara CA
- Feb.6-8, 2012, YIPQS Symposium "Perspectives in Theoretical Physics - From Quark-Hadron Sciences to Unification of Theoretical Physics -" Yukawa Institute for Theoretical Physics, Kyoto University "Holographic Gauge Theory in D=3"
- Dec.19,2011, Perugia, Italy, Physics Seminar "Holographic fermion fixed points in D=3"
- Nov. 27, 2011, Mathematical Physics Seminar, University of Tours, France "Holographic fermions in D=3"
- November 18, 2011, Plenary Speaker, Paris Meeting on Holography at Finite Density, APC, Paris, France, "Holographic Fermions in D=3"
- November l4,21,23, 2011, Lecture series delivered at Henri Poincare Institute, Paris, France, "Introduction to AdS/CFT"
- October 22, 2011, Plenary Speaker, American Physicsl Society Northwest Division Annual Meeting, Corvalis, Oregon, "Relativistic Dynamics of Graphene".
- September 15, 2011, Invited speaker, Kavli Institute for Theoretical Physics, Santa Barbara, part of "Holographic Duality and Condensed Matter Physics" program, "Graphene and holographic fermions in D=3".

- August 23, 2011, Plenary Speaker, "Strings, Gauge Theory and the LHC", Niels Bohr International Academy, Copenhagen, Denmark. "Holographic Fixed Points in D=3".
- July-August, 2011, Participant, "Nonperturbative Effects and Dualities in QFT and Integrable Systems", Kavli Institute for Theoretical Physics, Santa Barbara
- June 2, 2011, Public Lecture at the University of Lethbridge, "Graphene, the idea, the material and the future".
- May 5, 2011, Rencontres theoriciennes, Institute Henri Poincare, Paris, France. "AdS/CFT Holography and 3D Fermi Gases"
- May 4, 2011, Plenary Speaker, "Large N Gauge Theories", Florence, Italy, "AdS/CFT Holography and 3D Fermi Gases"
- April 23-May 13, 2011, Workshop Participant, "Large N Gauge Theories", Instituto Galileo Galilei, Florence, Italy.
- February 18, 2011, Theoretical Physics Seminar, KEK Lab, Tsukuba, Japan, "Holography and the Schwinger Effect"
- February 16, 2011, String and Mathematical Theory Seminar, Institute for Mathematics and Physics of the Universe (IPMU), Tokyo, "Holographic Schwinger Effect"
- February 14, 2011, High Energy Physics Seminar, University of Tokyo, Hongo, "Holography and the Schwinger Effect"
- January 11, 2011, "Graphene, the Idea, the Material and the Future", PITP-St. Johns College Public Lectures on Quantum Phenomena.
- December 2, 2010, High Energy Physics Seminar, University of Cincinnati, "Holographic Schwinger Effect".
- December 1, 2010, Physics Department Colloquium, University of Cincinnati, "Relativistic Dynamics of Graphene".
- September 20, 2010, String Theory Seminar, University of Rome, "Holographic Schwinger Effect".
- August 30 - September 19, 2010, Participant at Galileo Galilei Workshop on AdS/CFT, seminar "Schwinger Pair Production in Planar $\mathcal{N} = 4$ Supersymmetric Yang Mills Theory"
- June, 2010, Nordita Workshop on String Theiry, Integrability and Holography, seminar "Graphene"
- June, 2010, Plenary Speaker, Canadian Association of Physicists Congress, "Graphene, the Idea, the Material, What's Next".
- May, 2010, Nobel Symposium on Graphene, Stockholm Sweden, presentation "Chiral Symmetry Breaking in Graphene"
- May, 2010, participant in Strings and the LHC Workshop, KITP, Santa Barbara.

- April, 2010, Theoretical Physics Seminar, Bogoliubov Institute for Theoretical Physics, Kiev, Ukraine, "Can Graphene Gap Itself?"
- April, 2010, ECT Conference on Graphene, ECT, Trento, Italy, plenary speaker "Anomalous Hall Effect in Graphene"
- February 27, 2010, Theoretical Physics Seminar, King's College, London "Can Graphene Gap Itself?"
- February 21, 2010, High Energy Physics Seminar, Niels Bohr Institute, Copenhagen, "Holographic Schwinger Effect"
- February 17, 2010, Theoretical Physics Seminar, Graduate College, City University of New York, "Holographic Heavy Quarks and the Giant Polyakov Loop"
- December 10, 2009, Invited Speaker, "Strong Coupling Gauge Theories in the LHC Era, "SCGT 09", Nagoya, Japan, "Giant loop holography"
- December 7, 2009, High Energy Physics Seminar, University of Tokyo, Hongo, Tokyo, Japan, "Holographic Heavy Quarks and the Giant Polyakov Loop"
- Oct.16 2009, Colloquium, University of Crete, Greece, "Relativistic Dynamics of Graphene"
- October 20 2009, Theoretical Physics Seminar, University of Perugia, Italy "Holographic Heavy Quarks"
- September 8, 2009, Invited Speaker, TNT Meeting, ECT, Trento, Italy "Holographic heavy quark and the giant Polyakov loop"
- August 27, 2009, Invited Speaker, "Emergence", Vancouver, Canada, "The Holographic Hall Effect"
- July 26, 2009, Invited Speaker, Quantum Theory and Symmetries, Lexington Kentucky: "Hologrpahy with giant loops"
- June 9, 2009, Invited Speaker, CAP meeting, Moncton, New Brunswick, "Giant loop holography"
- June 2, 2009, Presentation to the holography workshop, Aspen Center for Physics, Aspen, Colorado, "Holographic Wilson Loop"
- May. 6, 2009, Galileo Galilei Institute, Florence, Italy, workshop presentation "Holographic Giant Polyakov Loop"
- December 14, 2008, Joint Hamburg University - DESY Colloquium "Relativsitic Dynamics of Graphene"
- December 1 - December 31, 2008, Visiting Professor, University of Tours, Tours, France
- November 9-14, 2008, "Black Holes: Theoretical, Computational and Mathematical Aspects", Banff International Research Station, Banff, Alberta, participant and invited speaker "Giant Loop Holography"

- October 15-31, 2008, visit to University of Perugia, Perugia, Italy, supported by INFN collaborative grant.
- October, 2008, Physics Department Colloquium, University of Perugia, "Relativistic Dynamics of Graphene"
- August 30 - September 20, 2008, "Low Dimensional Quantum Field Theories and Applications", Galileo Galilei Institute, Florence, Italy, participant and invited speaker, "Relativistic Dynamics of Graphene".
- August 22 - August 29, 2008, "Graphene Week", ICTP, Trieste, Italy, participant.
- June 28 - July 4, 2008, "LEES", Whistler, British Columbia, participant and invited speaker, "Domain Walls in Gapped Graphene".
- June 22 - June 27, 2008, "New Directions in String Theory", Banff International Research Station, Banff, Alberta, Organizer and participant.
- June 18 - June 21, 2008, "The Physics of Graphene", Aspen Center for Physics, Aspen, Colorado, participant.
- May 4 - May 25, 2008, "Nonperturbative Methods in Strongly Coupled Gauge Theories", The Galileo Galilei Institute for Theoretical Physics, Florence, Italy, participant and invited speaker, "Finite Size Corrections to the Giant Magnon" and "Relativistic Dynamics of Graphene".
- May, 2008, Theoretical Physics Seminar, University of Milan, "On the finite size spectrum of the giant magnon".
- May, 2008, Theoretical Physics Seminar, University of Padua, "On the finite size spectrum of the giant magnon".
- May, 2008, Theoretical Physics Seminar, University of Parma, "Relativistic Dynamics of Graphene".
- April 19, 2008, Theoretical Physics Seminar, KTH, Stockholm, Sweden, "Domain Walls as Quantum Wires in Gapped Graphene"
- April 17, 2008, Physics and Astronomy Department Colloquium, Uppsala University, Uppsala, Sweden, "Relativistic Dynamics of Graphene".
- April 5 - April 15, Niels Bohr Institute, Copenhagen, High Energy Physics Seminar "On the finite size spectrum of the giant magnon"
- March-May, 2008 Invited participant, "From Strings to Things", Workshop at the Institute for Nuclear Theory, University of Washington, Seattle.
- March, 2008 Theoretical Physics Seminar, University of British Columbia – "Relativistic Dynamics of Graphene"
- February 24, 2008 Theoretical Physics Seminar, Center for Theoretical Physics, Massachusetts Institute of Technology – "On the finite size spectrum of the giant magnon"

- February 19-23, 2008, NSERC Grant Selection Committee 29, Ottawa, Canada
- February 18, 2008 Invited Speaker, Spock 10 (Conference on String Theory), Cincinnati, Ohio – "Small, Medium and Giant Magnons".
- February 17, 2008 High Energy Theory Seminar, University of Cincinnati – "Graphene Domain Walls as Quantum Wires".
- February 1-6, 2008, Organizer and participant, "Gauge fields, cosmology and mathematical string theory", workshop at BIRS, Banff, Alberta
- January, 2008 Organizer and participant, "Relativistic Dynamics of Graphene", Conference at the Institute for Nuclear Theory, University of Washington, Seattle.
- November 14, 2007 Triangle Seminar on String Theory, Universities of London, U.K. – "Small, Medium and Giant Magnons".
- October 31, 2007 Theoretical Physics Seminar at Liverpool University, U.K. – "Finite size Magnon Spectrum"
- October,November, 2007 Invited speaker and participant, "Strong Fields and Integrability Workshop", Isaac Newton Institute for Mathematical Sciences, Cambridge, U.K.
- July, 2007 Chief Organizer, "Integrability of N=4 Supersymmetric Yang-Mills Theory", focused research group at the Banff International Research Station, BIRS.
- July, 2007 Plenary Speaker, "Statistical Field Theory of Quantum Devices", Perugia Italy, July, 2007 – "Stretched states from Majorana modes"
- May, 2007 Participant, Exotic States of Hot and Dense Matter and their Dual Description May 22 - 25, 2007, Perimeter Institute, Waterloo, Ontario.
- May 2007 Invited Speaker, Random Matrix Theory: Recent Applications Copenhagen, Denmark, May 7-16, 2007 – "Gauge invariant finite size spectrum of the giant magnon".
- April 2007 Invited lecturer, "Network School on Random Matrices and Random Geometry", Barcelona, Spain – "Matrix models for $\frac{1}{2}$-BPS states"
- Feb 2007 String theory seminar, Perimeter Institute
- Feb 2007 Invited speaker, 21st Nordic Network Meeting on "Strings, Fields and Branes", The Alba Nova University Center, Stockholm, Sweden.
- Nov 2006 String theory seminar, CEA, Saclay, Gif sur Yvette, France.
- Nov 2006 Plenary speaker, "Origin of Mass in Strong Coupling Gauge Theories", Nagoya, Japan.
- Oct 2006 String Theory Seminar, University of Perugia, Italy
- Oct 2006 Condensed matter Seminar, University of Perugia, Italy
- Oct 2006High Energy Theory Seminar, University of Washington, Seattle

- Aug 2006 Organizer, Summer School on Strings, Gravity and Cosmology, Vancouver, BC
- Aug 2006 Invited Speaker, "Niels Bohr Summer Institute 2006", "Black Holes and String Theory", Niels Bohr Institute, Copenhagen, Denmark
- Jul 2006 Invited speaker "Integrability in Gauge and String Theory", Albert Einstein Institute, Potsdam, Germany
- Jun 2006 Participant, "Strings 2006", Beijing, China
- Apr 2006 Theoretical Physics Seminar, University of Alberta, Edmonton
- Apr 2006 External examiner for Ph.D. defence of Muraari Vasudevan, Department of Physics, University of Alberta, Edmonton, Alberta.
- Mar 2006 Quantum information seminar, Progetto Lagrange, Polytechnique Institute, Torino, Italy
- Mar 2006 Condensed matter seminar, ISI, Torino, Italy
- Mar 2006 String theory seminar, University of Torino, Italy
- Mar 2006 String theory seminar, Perimeter Institute, Waterloo
- Feb 2006 Invited Speaker, PITP Decoherence Workshop, Vancouver, Canada
- Jan 2006 Theoretical Physics Seminar, University of Perugia, Italy
- Nov 2005 String theory seminar, Saclay, France.
- Aug 2005 Yukawa Institute for Theoretical Physics Workshop on String Theory and Quantum Field Theory, Kyoto, Japan
- Jun 2005 Plenary Lecturer, "Field theories for quantum coherent devices", Annacapri, Italy.
- Apr 2005 High Energy Theory Seminar, University of Tokyo, Tokyo, Japan
- Apr 2005 High Energy Theory Seminar, KEK Lab, Tsukuba, Japan
- Feb 2005 Plenary Speaker, APCTP/KIAS Winter School, Seoul, Korea
- Dec 2004 Theoretical Physics Seminar, University of Perugia, Italy
- Nov 2004 String Theory Seminar, KITP Workshop on Strings and QCD
- Aug 2004 Plenary speaker, Recent Developments in String/M-Theory and Field Theory ", Ahrenshoop Meeting, Berlin, Germany.
- Jun 2004 Plenary speaker, "Random Matrices", ICTP, Trieste, Italy
- May 2004 Plenary speaker, Harryfest, McGill University, Montreal, Quebec
- May 2004 Joint Isreal Regional Theory Seminar, Weizmann Institute, Rehovot, Isreal
- Feb 2004 High Energy Theory Seminar, KEK Lab, Tsukuba, Japan

- Feb 2004 High Energy Theory Seminar, University of Tokyo, Tokyo, Japan
- Jan 2004 Plenary speaker, 'Circumnavigating theoretical physics, Oxford U.K.
- Dec 2003 Plenary speaker, Pacific Northwest String Seminar, Seattle, Washington
- Nov 2003 Theoretical Physics Seminar, University of Perugia, Italy.
- Nov 2003 String theory seminar, Perimeter Institute, Waterloo, Ontario
- Sep 2003 Theoretical Physics Seminar, University of Kentucky, Lexington, Kentucky
- Sep 2003 Plenary speaker, "Quantum Theory and Symmetries", Cincinatti, Ohio
- Jun 2003 Double Plenary speaker (in two separate sessions), Canadian Mathematics Congress, Edmonton, Alberta
- May 2003 Theory seminar, ITEP, Moscow, Russia
- May 2003 Plenary Speaker, "QCD and Strings", MCTP, Ann Arbor, Michigan.
- May 2003 Plenary speaker, "Gauge fields and strings", Stepanakert, Nogorno-Karabak, Armenia.
- Feb 2002 Plenary Speaker, KIAS/APCTP Winter School, Seoul, Korea
- Feb 2002 Plenary speaker, "QCD and String Theory", Nuclear Theory Institute, Seattle.
- Jan 2003 Theoretical cosmology seminar, University of Alberta, Edmonton
- Dec 2002 Plenary speaker, Strongly Coupled Gauge Theories 2002, Nagoya, Japan
- Dec 2002 Theoretical Physics Seminar, University of Tokyo, Tokyo, Japan
- Oct 2002 String theory seminar, CERN, Geneva
- Oct 2002 High Energy Physics Seminar, Ecole Normale Superiore, Paris, France
- Oct 2002 String Theory Seminar, Saclay, France
- Sep 2002 Theoretical Physics Seminar, ITEP Moscow
- Sep 2002 Plenary speaker, Workshop on Quanta and Particles, Baku, Azerbaijan
- Sep 2002 Plenary speaker, Workshop on Integrability, Tbilisi, Georgia
- Aug 2002 Weekly Theory Seminar, Aspen Center for Physics, Aspen, Colorado
- Jul 2002 Plenary Speaker, PIMS Summer Workshop on Braneworlds and Supersymmetry.
- Jun 2002 Theoretical Physics Seminar, University of Perugia, Italy
- Jun 2002 Plenary talk, CIAR cosmology meeting, Campbell River, British Columbia
- May 2002 String theory seminar, Albert Einstein Institute, Pottsdam, Germany.

- Feb 2002 Theoretical Physics Seminar, Niels Bohr Institute, Copenhagen, Denmark.
- Jan 2002 Plenary speaker, Sapporo Winter School, Sapporo, Japan.
- Dec 2001 APCTP/KIAS Winter School, Seoul, Korea
- Dec 2001 Theoretical Physics Seminar, Albert Einstein Institute, Potsdam, Germany
- Sep 2001 Plenary speaker, Ioffe Meeting, Gif-sur-Yvette, France.
- Sep 2001 Plenary speaker, Light-cone Meeting, Trento, Italy
- Aug 2001 Invited speaker, Canada-China Mathamatics Conference, Vancouver.
- Jul 2001 Invited speaker, Tohwa Symposium, Fukuoka, Japan.
- Apr 2001 Invited participant, M-theory Workshop, Institute for Theoretical Physics, Santa Barbara
- Feb 2001 Invited speaker, Workshop on Gauge Theory, Jena, Germany.
- Feb 2001 Speaker, Lake Louise Winter Institute, Lake Louise, Alberta, Canada
- Jan 2001 Invited speaker, Pacific Rim Conference on Mathematics, Taipei, Taiwan
- Feb 2001 Invited speaker, Canadian Institute for Advanced Research Meeting, Banff, Canada
- -Gravitational Theory Seminar, Albert Einstein Institute, Golm, Germany, February, 2001.
- Nov 2000 Invited speaker, Semestre de Superchordes, Inst. Henri Poincare, Paris.
- -Theoretical Physics Seminar, Istituto di Fisica Nucleare, Torino, Italy, December, 2000.
- -Theoretical Physics Seminar, University of Rome, Itsly, December, 2000.
- -Theoretical Physics Seminar, University of Perugia, Italy, December, 2000.
- -Mathematics Seminar, University of Milan, Italy, December, 2000.
- -Theoretical Physics Seminar, Laboratoire de Physique, Saclay, France, November, 2000.
- -Theoretical Physics Seminar, Physics Dept. , University of Zaragoza, Spain, November, 2000.
- -Mathematical Physics Seminar, Korean Institute for Advanced Study (KIAS), Seoul, Korea, October, 2000.
- -Theoretical Physics Seminar, Asia Pacific Center for Theoretical Physics, Seoul, Korea, October, 2000.
- -Physics Colloquium, Department of Physics, University of Calgary, October, 2000
- Jul 2000 Invited speaker, Rochester Meeting ICHEP2000, Osaka, Japan
- Jun 2000 Plenary speaker, Triangle Meeting, Copenhagen, Denmark

- May 2000 Plenary speaker, Canadian Association of Physics Annual Congress, 2000, York University.
- -Mathematical Physics Seminar, Royal Institute of Technology (KTH), Stockholm, May, 2000.
- -Theoretical Physics Seminar, Department of Theoretical Physics, Uppsala University, May, 2000.
- -High Energy Physics Seminar, University of Tokyo, December, 1999.
- -Theoretical Physics Seminar, KEK, Tsukuba, Japan, December, 1999.
- Dec 1999 Invited speaker, Yale/TMU symposium, Tokyo, Japan.
- -Theoretical Physics Seminar, Simon Fraser University, October, 1999.
- -Invited lecture, Science I, UBC, Vancouver, October, 1999.
- Sep 1999 Invited speaker, Conference on topology and phase transitions in hot gauge theories, Corfu, Greece.
- Sep 1999 Invited speaker, Symposium on Field Theoretical Methods in Condensed Matter Physics, Corfu, Greece.
- May 1999 Invited Speaker, "Gauge invariant variables", Brookhaven National Lab, Upton, N.Y.
- May,1999 Opponent for PhD Thesis Defence of candidate Topi Kärki, Uppsala, Sweden.

8 Supervision of Research Manpower

8.1 Master of Science Students and Year of Thesis Completion

Werner Keil, 1985; Geoffrey Hayward, 1986; Robert Link, 1986; David Morgan, 1987; Duncan Rogers, 1987; Mario Bergeron, 1989; Richard Szabo, 1991; John Smith, 1991; Nicole Marshall, 1995; Sebastian Jaimungal, 1996; Micheal Clark, 1997, Philip de Boer, 2000; Ben Sussman, 2001; Jaffer Gardezi, 2003; Mark Laidlaw, 2000, Bojan Ramadanovic, 2004; Donovan Young, 2004; Brian Sheih, 2004; Shirin Hadizadeh, 2005; Matheson Longton 2006; Simon Yewchuk 2006; Steven Conboy 2007; Matthew Hasselfield 2006. Mohammad Faghfoor-Magrebi 2008, Daniel Lidstrom 2010, Shuhang Yang 2010.

Doctor of Philosophy Students and Year of Thesis Completion

Werner Keil, 1989, presently at TRIUMF, Vancouver; Robert Link, 1989, presently at UBC, Electrical Engineering; Alexander Rutherford, 1989, presently at Mathematics Department, U.B.C.; Mario Bergeron, 1993, presently at McGill University; Richard Szabo, 1995, Presently a Professor at Department of Mathematics, Heriot Watt University, Edinburgh: Lori Paniak, Presently a Postdoctoral Fellow at University of Michigan: Sebastian Jaimungal, Presently Associate Professor at the University of Toronto Statistics Department; Mark Laidlaw, 2002, Presently a Senior Instructor at the University of Victoria; Donovan Young, 2007, Postdoctoral Fellow at Humboldt University of Berlin; Bojan Ramadanovic, 2009, Research Associate, IRMACS, Burnaby, BC.

Present Graduate Students

Hamid Omid, Si Chen, Namshik Kim, Mike McDermott, Alex Rohvarger

Postdoctoral Fellows and Research Associates Supervised

Manu Paranjape, Postdoctoral Fellow, 1983-84, Presently Professor of Physics, University of Montreal, Montreal Quebec

Randall Kobes, Postdoctoral Fellow, 1984-1986, Presently Professor of Physics, University of Winnipeg, Winnipeg, Manitoba

David London, Research Associate, 1986-1987, Presently Professor of Physics, University of Montreal, Montreal, Quebec.

David Eliezer, Postdoctoral Fellow, 1991-1992, Presently working as an interest rate analyst for a financial firm.

Edwin Langmann, Schrödinger Fellow, 1991-1993, Presently Professor at the Royal Institute of Technology, Stockholm, Sweden.

Mikhail Dobroliubov, NSERC International Postdoctoral Fellow, 1991-1994, Vice President, American Express Inc.

Wei Chen, NSERC International Postdoctoral Fellow, 1991-1993. Founder and CEO, Rinton Publishing Co., Princeton, New Jersey.

Olav Tirkkonen, NSERC International Postdoctoral Fellow, 1994-1996, Nokia Professor of Applied Science, Aalto University School of Science and Technology, Espoo Finland.

Andre Dubin, NATO Postdoctoral Fellow, 1995-1997. Staff member at ITEP.

Domingo Martinez, NSERC Postdoctoral Fellow, 1995-1997. Senior Lecturer, UBC.

Sayed Sakhi, NSERC Postdoctoral Fellow, 1995-1997, Professor, King Faisil University, Riyadh, Saudi Arabia.

Christof Gattringer, Schrödinger Fellow, 1996-1999, Professor, Graz University, Austria

Joaquim Hallin, National Science Council of Sweden Postdoctoral Fellow, 1996-1997. Presently Research Scientist, Erikson, Gothenberg, Sweden.

Igor Halperin, Postdoctoral Fellow, 1996-1998; Financial industry in Isreal.

Konstantin Zarembo, NATO Postdoctoral Fellow, 1997-1999, Pacific Institute for Mathematical Sciences Posdoctoral Fellow, 1999-2001, Professor at Nordita, Stockholm, Sweden.

Roberto Scipioni, Tardini Foundation Fellow, 1999-2000; Material Science at Oxford University.

Emil Akhmedov, NATO Postdoctoral Fellow, 1999-2001; Senior Scientific Staff, ITEP, Moscow

Kazuki Furuuchi, Pacific Institute for Mathematical Sciences Postdoctoral Fellow 2001-2003; Associate Professor, National University, Taiwan.

Dominic Brecher, Pacific Institute of Mathematical Sciences Postdoctoral Fellow 2003-2005, Presently working as a Financial Analyst, FINCAD, Surrey, BC

Ehud Schreiber, Pacific Institute of Mathematical Sciences Postdoctoral Fellow 2002-2004, Financial Indudstry

Kazumi Okuyama, Postdoctoral Fellos 2004-2007, now in a faculty position in Japan.

Paul Koerber, Postdoctoral Fellow 2004-2006, now at the Max Planck Institute, Munich.

Anindya Mukherjee, Postdoctoral Fellow 2007-2010, Analyst at FINCAD, Surrey, BC.

Pallab Basu, Postdoctoral Fellow 2007-2010, now a Postdoctoral Fellow at the University of Kentucky

Klaus Larjo, Postdoctoral Fellow 2008-2011

Barton Czech, Institute for Particle Physics Postdoctoral Fellow 2009-2012

Tommy Levi, Institute for Particle Physics Postdoctoral Fellow 2009-2012

Joshua Davis, Postdoctoral Fellow, 2009-2012

Visiting Professors

Professor Ian Lawrie, 1985-1986, University of Leeds, U. K.

Laszlo Palla, May, 1989, Eotvos University, Budapest, Hungary.
Jan Ambjorn, December 1989-Mar.1990, Niels Bohr Institute, Copenhagen, Denmark.
Yong-Shi Wu, July, August, 1989, University of Utah, Salt Lake City, Utah.
Yu. Makeenko, April, 1991, May, 1992, April, 1993, August, 1994, July, 1996, Institute for Theoretical and Experimental Physics, Moscow, Russia
Andre Marshakov, May, 1992, Lebedev Institute, Moscow, Russia.
Ian Kogan, 1991-1992. Institute for Theoretical and Experimental Physics, Moscow, Russia
Alexei Morozov, Jun-Sept 1992, Jul.-Sept 1993, Institute for Theoretical and Experimental Physics, Moscow, Russia.
Andrei Mironov, Jul-Sept 1993, Lebedev Institute for Physics, Academy of Sciences of Russia, Moscow, Russia.
Pasquale Sodano, July 1994, Dipartimento di Fisica, Universita di Perugia, Perugia, Italia
Alexander Polyakov, July-August 1994, July 1996, July 1997, Department of Physics, Princeton University, Princeton, New Jersey
Gianluca Grignani, January-March, 1995, January-February, 1996, February 1997, July 1997, Dipartimento di Fisica, Universita di Perugia, Perugia, Italy.
Antti J. Niemi, August 1995-February 1996, Department of Theoretical Physics, Uppsala University, Uppsala, Sweden.
Vladimir Kazakov, July, 1996, Ecole Normale Superiore, Paris.
Pavel Wiegmann, July, 1996, Juy 1997, James Franck Institute, University of Chicago.
Andrei Marshakov, Lebedev Institute, Moscow, February, 2005
Sunil Mukhi, Tata Institute, Mumbai, March, 2006, May 2007.
Jan Plefka, Humboldt University, July-August, 2007; July August 2009.
Konstantin Zarembo, Uppsala University, July-August, 2007.
Antti Niemi, Uppsala University, July 2010.
Volker Schomerus, August 2008; August 2010.

PUBLICATION LIST

Gordon Walter Semenoff

** denotes highly cited papers (over 50 citations according to Google Scholar)

1. D. Carney, L. Chaurette, D. Neuenfeld and G. Semenoff, "On the need for soft dressing," arXiv:1803.02370 [hep-th].

2. B. Acharya *et al.* [MoEDAL Collaboration], "Search for magnetic monopoles with the MoEDAL forward trapping detector in 2.11 fb^{-1} of 13 TeV proton-proton collisions at the LHC," Submitted to: Phys.Lett.B [arXiv:1712.09849 [hep-ex]].

3. G. W. Semenoff and F. Zhou, "Dynamical violation of scale invariance and the dilaton in a cold Fermi gas," Phys. Rev. Lett. in press, arXiv:1712.00119 [cond-mat.quant-gas].

4. J. Gordon and G. W. Semenoff, "Worldsheet Instantons and the amplitude for string pair production in an external field as a WKB exact functional integral," JHEP, in press, arXiv:1710.03310 [hep-th].

5. D. Carney, L. Chaurette, D. Neuenfeld and G. W. Semenoff, "Dressed infrared quantum information," Phys. Rev. D **97**, no. 2, 025007 (2018) doi:10.1103/PhysRevD.97.025007 [arXiv:1710.02531 [hep-th]].

6. D. Carney, L. Chaurette, D. Neuenfeld and G. W. Semenoff, "Infrared quantum information," Phys. Rev. Lett. **119**, no. 18, 180502 (2017) doi:10.1103/PhysRevLett.119.180502 [arXiv:1706.03782 [hep-th]].

7. G. Grignani and G. W. Semenoff, "Scattering and momentum space entanglement," Phys. Lett. B **772**, 699 (2017), [arXiv:1612.08858 [hep-th]].

8. J. Gordon and G. W. Semenoff, "Schwinger pair production: Explicit Localization of the world-line instanton," arXiv:1612.05909 [hep-th].

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12. C. Kristjansen and G. W. Semenoff, "The D3-probe-D7 brane holographic fractional topological insulator," JHEP **1610**, 079 (2016) doi:10.1007/JHEP10(2016)079 [arXiv:1604.08548 [hep-th]].

13. ** B. Acharya *et al.* [MoEDAL Collaboration], "Search for magnetic monopoles with the MoEDAL prototype trapping detector in 8 TeV proton-proton collisions at the LHC," JHEP **1608**, 067 (2016), [arXiv:1604.06645 [hep-ex]].

14. G. Grignani, A. Marini, A. C. Pigna and G. W. Semenoff, "Phase structure of a holographic double monolayer Dirac semimetal," JHEP **1606**, 141 (2016), [arXiv:1603.02583 [hep-th]].

15. A. Adem, O. A. Camarena, G. W. Semenoff and D. Sheinbaum, "Topology of Fermi Surfaces and anomaly inflows," JHEP **1611**, 083 (2016) [arXiv:1509.01635 [cond-mat.mes-hall]].

16. ** G. W. Semenoff, V. Semenoff and F. Zhou, "Domain walls in gapped graphene," Phys. Rev. Lett. **101**, no. 8, 087204 (2008) [arXiv:0806.0094 [cond-mat.mes-hall]].

17. G. Grignani, N. Kim, A. Marini and G. W. Semenoff, "Holographic D3-probe-D5 Model of a Double Layer Dirac Semimetal," JHEP **1412**, 091 (2014), [arXiv:1410.4911 [hep-th]].

18. D. Sheinbaum, A. Adem and G. W. Semenoff, "Topology of Fermi Surfaces and Anomalies," arXiv:1509.01635 [cond-mat.mes-hall].

19. Shao-Jian Jiang, Wu-Ming Liu, Gordon W. Semenoff, Fei Zhou, "Universal Bose Gases Near Resonance: A Rigorous Solution", Phys. Rev. B, 2014, in press, arXiv:1307.4263.

20. G. Grignani, J. L. Karczmarek and G. W. Semenoff, "Hot Holographic Giant Loop," J. Phys. Conf. Ser. **462** (2013) 1, 012045.

21. G. Grignani, N. Kim, A. Marini and G. W. Semenoff, "Holographic D3-probe-D5 Model of a Double Layer Dirac Semimetal," arXiv:1410.4911 [hep-th].

22. G. Grignani, A. Marini, N. Kim and G. W. Semenoff, "Exciton Condensation in a Holographic Double Monolayer Semimetal," arXiv:1410.3093 [hep-th].

23. V. E. Hubeny and G. W. Semenoff, "Holographic Accelerated Heavy Quark-Anti-Quark Pair," arXiv:1410.1172 [hep-th].

24. V. E. Hubeny and G. W. Semenoff, "String worldsheet for accelerating quark," arXiv:1410.1171 [hep-th].

25. J. Hutchinson, C. Kristjansen and G. W. Semenoff, "Conductivity Tensor in a Holographic Quantum Hall Ferromagnet," Phys. Lett. B **738** (2014) 373 [arXiv:1408.3320 [hep-th]].

26. J. Gordon and G. W. Semenoff, "World-line instantons and the Schwinger effect as a Wentzel?Kramers?Br exact path integral," J. Math. Phys. **56**, 022111 (2015) [arXiv:1407.0987 [hep-th]].

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28. C. Kristjansen, R. Pourhasan and G. W. Semenoff, "A Holographic Quantum Hall Ferromagnet," JHEP **1402** (2014) 097 [arXiv:1311.6999 [hep-th]].

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32. H. Omid and G. W. Semenoff, "D3-D7 Holographic dual of a perturbed 3D CFT," Phys. Rev. D **88** (2013) 2, 026006 [arXiv:1208.5176 [hep-th]].

33. G. Grignani, N. Kim and G. W. Semenoff, "D7-anti-D7 bilayer: holographic dynamical symmetry breaking," Phys. Lett. B **722** (2013) 360 [arXiv:1208.0867 [hep-th]].

34. Y. Araki and G. W. Semenoff, "Spin Versus Charge Density Wave Order in Graphene-like Systems," Phys. Rev. B **86** (2012) 121402 [arXiv:1204.4531 [cond-mat.str-el]].

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40. J. L. Davis, H. Omid and G. W. Semenoff, "Holographic Fermionic Fixed Points in d=3," JHEP **1109**, 124 (2011) [arXiv:1107.4397 [hep-th]].

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43. F. Passerini, J. Plefka, G. W. Semenoff and D. Young, "On the Spectrum of the $AdS_5 \times S^5$ String at large lambda," JHEP **1103**, 046 (2011) [arXiv:1012.4471 [hep-th]].

44. G. W. Semenoff, "Electronic zero modes of vortices in Hall states of gapped graphene," Phys. Rev. B **83**, 115450 (2011) [arXiv:1005.0572 [hep-th]].

45. ** V. Juricic, I. F. Herbut and G. W. Semenoff, "Coulomb interaction at the metal-insulator critical point in graphene," Phys. Rev. B **80**, 081405 (2009) [arXiv:0906.3513 [cond-mat.str-el]].

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47. G. W. Semenoff, G. Grignani and J. Karczmarek, "Large representation Polyakov loop in hot Yang-Mills theory," PoS **QCD-TNT09**, 041 (2009).

48. ** G. Grignani, T. Harmark, M. Orselli and G. W. Semenoff, "Finite size Giant Magnons in the string dual of N=6 superconformal Chern-Simons theory," JHEP **0812**, 008 (2008) [arXiv:0807.0205 [hep-th]].

49. B. Ramadanovic and G. W. Semenoff, "Finite Size Giant Magnon," Phys. Rev. D **79**, 126006 (2009) [arXiv:0803.4028 [hep-th]].

50. **G. W. Semenoff, V. Semenoff, Fei Zhou, "Domain Walls in Gapped Graphene", Phys. Rev. Lett. **101** 087204 (2008) [arXiv:0806.0094 [cond-mat.mes-hall]].

51. C. Chamon, C. Y. Hou, R. Jackiw, C. Mudry, S. Y. Pi and G. Semenoff, "Electron fractionalization for two-dimensional Dirac fermions," Phys. Rev. B **77**, 235431 (2008) [arXiv:0712.2439 [hep-th]].

52. **D. Astolfi, V. Forini, G. Grignani and G. W. Semenoff, "Gauge invariant finite size spectrum of the giant magnon," Phys. Lett. B **651**, 329 (2007) [arXiv:hep-th/0702043].

53. ** J. L. Song, G. W. Semenoff and F. Zhou, "Quantum fluctuation-induced uniaxial and biaxial spin nematics," arXiv:cond-mat/0702052.

54. G. Grignani, M. Orselli, B. Ramadanovic, G. W. Semenoff and D. Young, "Testing AdS/CFT at string loops," Fortsch. Phys. **55**, 742 (2007).

55. G. W. Semenoff, "Giant loops and the AdS/CFT correspondence," *In *Nagoya 2006, The origin of mass and strong coupling gauge theories* 65-71*

56. ** G. W. Semenoff and F. Zhou, "Discrete symmetries and 1/3-quantum vortices in condensates of F=2 cold atoms," Phys. Rev. Lett. **98**, 100401 (2007) [arXiv:cond-mat/0610162].

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62. ** K. Okuyama and G. W. Semenoff, "Wilson loops in N = 4 SYM and fermion droplets," JHEP **0606**, 057 (2006) [arXiv:hep-th/0604209].

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65. M. Hasselfield, T. Lee, G. W. Semenoff and P. C. E. Stamp, "Critical boundary sine-Gordon revisited," Annals Phys. **321**, 2849 (2006) [arXiv:hep-th/0512219].

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