# Victor M. Galitski

**Home Address**
1515 Jefferson Davis Hwy., #709
Arlington, VA 22022
Phone: 434.284.2713

**Business Address**
Physics Department, University of Maryland
College Park, MD 20742-4111
Phone: 301.405.6107
Fax: 301.314.9465
E-mail: galitski@umd.edu

**Degrees**

| | |
|---|---|
| August 2002 | Ph.D. in theoretical condensed matter physics, University of Minnesota, Minneapolis |
| August 1999 | Ph.D. in theoretical astrophysics (magneto-hydrodynamics) from Moscow Engineering Physics Institute (MEPhI), Russia |
| April 1998 | Equivalent to a MS degree in Engineering with a minor in Computer Science MEPhI, Moscow, Russia (diploma *Cum Laude*) |

**Employment**

| | |
|---|---|
| Since 09/2006 | Assistant Professor in the Department of Physics within the College of Computer, Mathematical, and Physical Sciences (CMPS) at the University of Maryland and Fellow of the Joint Quantum Institute |
| 08/2005 – 08/2006 | Assistant Professor in the Department of Physics of the University of Virginia |
| 09/2004 – 08/2005 | Research Fellow, Kavli Institute for Theoretical Physics University of California, Santa Barbara |
| 09/2002 – 08/2004 | Research Fellow, Condensed Matter Theory Center and Center for Superconductivity Research, University of Maryland |
| 09/1999 – 08/2002 | Research/Teaching Assistant, University of Minnesota |
| 09/1997 – 03/1998 | Undergraduate Internship, *Institut des Science Nuclearies*, Grenoble, France |

**Professional activities**

Referee for Physical Review Letters, Physical Review B, and Europhysics Letters

Referee for the Department of Energy, Department of Defense, and the Israeli Science Foundation

**Publications**

*Condensed Matter Physics:*

1. Galitski, V. M. and Larkin, A. I., "Disorder and Quantum Fluctuations in Superconducting Films in Strong Magnetic Fields," *Physical Review Letters* **87**, 087001 (2001)
2. Galitski, V. M. and Larkin, A. I., "Superconducting fluctuations at low temperature," *Physical Review B* **63**, 174506 (2001)
3. Galitski, V. M. and Larkin, A. I., "Spin glass versus superconductivity," *Physical Review B* **66**, 064526 (2002)
4. Galitski, V. M. and Das Sarma, S., "Kohn-Luttinger pseudo-pairing in a two-dimensional Fermi-liquid," *Physical Review B* **67**, 144520 (2003)
5. Galitski, V. M. and Das Sarma, S., "Renormalization of the upper critical field by superconducting fluctuations," *Physical Review B* **67**, 144501 (2003)
6. Das Sarma, S., Galitski, V. M., and Zhang, Y., "Temperature dependent effective mass renormalization in 2D electron systems," *Physical Review B* **69**, 125334 (2004)
7. Galitski, V. M., Kaminski, A., and Das Sarma, S., "Griffiths phase in diluted magnetic semiconductors," *Physical Review Letters* **92**, 177203 (2004)
8. Galitski, V. M. and Das Sarma, S., "Universal temperature corrections to Fermi liquid theory in an interacting electron system," *Physical Review B* **70**, 035111 (2004)
9. Kaminski, A., Galitski, V. M. and Das Sarma, S., "Ferromagnetic and random spin ordering in dilute magnetic semiconductors," *Physical Review B* **70**, 115216 (2004)
10. Galitski, V. M. and Khodel, V. A., "Divergence of the effective mass near a density wave instability in a MOSFET system," cond-mat/0308203
11. Galitski, V. M., "The internal Josephson effect in a Fermi gas near a Feshbach resonance," *Physical Review A* **72**, 013612 (2005)
12. Chubukov, A V., Galitski, V. M., and Yakovenko, V. M., "Quantum critical behavior near a density-wave instability in an isotropic Fermi liquid," *Physical Review Letters* **94**, 046404 (2005)
13. Galitski, V. M., Vavilov, M. G., and Glazman, L. I., " Aharonov-Bohm effect as a probe of interaction between magnetic impurities," *Physical Review Letters* **94**, 096602 (2005)
14. Galitski, V. M., Chubukov, A. V., and Das Sarma, S., "Temperature dependent spin susceptibility in a two-dimensional metal," *Physical Review B* (Rapid Communications) **71**, 201302 (2005)
15. Galitski, V. M., Refael, G., Senthil, T., and Fisher, M. P. A., "Vortices and quasiparticles near the "superconductor-insulator" transition in thin films," *Physical Review Letters* **95**, 077002 (2005)
16. Galitski, V. M., "Metallic phase in a two-dimensional disordered Fermi system with singular interactions," *Physical Review B* **72**, 214201 (2005)
17. Stanescu, T. and Galitski, V. M., "Surface states, Friedel oscillations, and spin accumulation in $p$-doped semiconductors," *Physical Review B* **74**, 205331 (2006)
18. Galitski, V. M., Burkov, A. A., and Das Sarma,S., "Boundary conditions for spin diffusion in disordered systems," *Physical Review B* **74**, 115331 (2006)
19. Stanescu, T. and Galitski, V. M., "Spin relaxation in a generic two-dimensional spin-orbit coupled system," *Physical Review B* **75**, 125307 (2007)
20. Nagornykh, P. and Galitski, V. M., "Expansion of a mesoscopic Fermi system from a harmonic trap," *Physical Review A* **75**, 065601 (2007)
21. Galitski, V. M., Adam, S., and Das Sarma, S., "Statistics of random voltage fluctuations and the low-density residual conductivity of graphene," *Physical Review B* **76**, 245405 (2007)

22. Adam S., Hwang E. H., Galitski V. M., and Das Sarma S., "A self-consistent theory for graphene transport," Proceeding of the National Academy of Science of the USA (PNAS) **104**, 18392 (2007)
23. Stanescu, T. D., Zhang C., and Galitski, V. M., "Non-equilibrium spin dynamics in a trapped Fermi gas with effective spin-orbit interaction," *Physical Review Letters* **99**, 110403 (2007)
24. Galitski, V. M. and Kim, Y.-B., "A mechanism for spinon pairing in a $U(1)$ spin liquid," to be published in *Physical Review Letters* **99** (2007) [preprint: arXiv:0707.4031]
25. Galitski, V. M., "Mesoscopic gap fluctuations in an unconventional superconductor," submitted to *Physical Review Letters* [preprint: arXiv:0708.3841]
26. Galitski, V. M., "Non-perturbative microscopic theory of superconducting fluctuations near a quantum critical point," submitted to *Physical Review Letters* [preprint: arXiv:0710.1868]

*Astrophysics:*

1. Galitski, V. M. and Sokoloff, D. D. "Dynamo waves in the theory of solar magnetism," *Acta Astron. Geophys. Comeniae* **19**, 1 (1997)
2. Galitski, V. M. and Sokoloff, D. D., "Spectrum of Parker Equations," *Astronomy Reports* **42**, 127 (1998); [translated from Russian: *Astronomicheskii Zhurnal* **71**, 144 (1998)]
3. Galitski, V. M. and Sokoloff, D. D., "Kinematic dynamo wave in the vicinity of the solar poles," in *Geophysical and Astrophysical Fluid Dynamics* **91**, 147 (1999); [see also: astro-ph/0104444]
4. Galitski, V. M., Kuzanyan, K. M., and Sokoloff, D. D., "Equatorial dynamo wave," *Astronomy Reports* **49**, 337 (2005) [translated from Russian: *Astronomicheskii Zhurnal* **82**, 378 (2005)]

**Presentations**

"Application of quantum-mechanical methods to the Krause-Rädler equations of mean-field electrodynamics," Conference "Stellar and Planetary Magnetoconvection," Modra, Slovakia (October 1996)

"Cosmic magnetic fields: review of recent observational and theoretical results," *Institut des Sciences Nucléaires de Grenoble*, France (November, 1997)

"Monte-Carlo simulations of cosmic rays at the AMS orbit," Alpha Magnetic Spectrometer collaboration meeting, France, (February, 1998)

"Kinematic dynamo-wave in the vicinity of the solar poles," Conference "New cycle of the solar activity," St. Petersburg, Russia, (June, 1998)

"Asymptotic theory of dynamo waves in Parker approximation," Conference "Large-scale solar magnetic activity," St. Petersburg, Russia (June, 1999)

"Kohn-Luttinger effect in a two-dimensional electron liquid," APS March Meeting, Minneapolis, MN (March, 2000)

"Magnetic field driven superconducting quantum phase transition," Boulder Summer School in Condensed Matter and Material Physics, University of Colorado, Boulder, CO (July, 2000)

"Superconducting fluctuations at low temperature," APS March Meeting 2001, Seattle, WA (March, 2001)

"Disorder and Quantum Fluctuations in Superconducting Films in Strong Magnetic Fields," Conference "Landau Days," Landau Institute for Theoretical Physics, Chernogolovka, Moscow Region, Russia (June, 2001)

"Fluctuations in two-dimensional superconductors," (poster presentation), Summer school on low-dimensional quantum systems: theory and experiment, The Abdus Salam International Center for theoretical physics, Trieste, Italy (July, 2001)

"Spin glass versus superconductivity," APS March Meeting, Indianapolis, IN (March, 2002)

"Competition Between Disorder and Quantum Fluctuations in Superconducting Films," Condensed Matter Theory Center seminar, College Park, MD (September, 2002)

"Spin glass versus superconductivity," workshop "Progress in Condensed Matter Theory," *Max-Planck-Institut für physik koplexer systeme*, Dresden, Germany (October, 2002)

"Essential singularities in disordered magnets," Michael Fisher's Statistical Physics Seminar, College Park, MD (September, 2003)

"Physics of Diluted Magnetic Semiconductors," Condensed Matter Seminar, Washington University in Saint Louis, MO (October, 2003)

"Quantum Fluctuations in Superconductors," Theory Seminar, Washington University in Saint Louis, MO (October, 2003)

"The impact of magnetic impurity interacton on the conductance of disordered metals," Condensed Matter Seminar, Yale University, New Haven, CT (January, 2004)

"The impact of magnetic impurity interacton on the conductance of disordered metals," Condensed Matter Seminar, University of California, CA (February, 2004)

"Magnetoresistance of a dilute magnetic alloy," Special Condensed Matter Seminar, Harvard University, MA (February, 2004)

"Griffiths phase in diluted magnetic semiconductors," APS March Meeting, Montreal, Canada (March, 2004)

"Universal temperature corrections to Fermi liquid theory in an interacting two-dimensional electron system," APS March Meeting, Montreal, Canada (March, 2004)

"The effects of disorder in diluted magnetic semiconductors," Condensed Matter Seminar, University of Maryland, College Park, MD (April, 2004)

"Quantum critical behavior near a density wave instability in an isotropic Fermi liquid," Workshop on frustrated magnetism, Brookhaven National Laboratory, NY (September, 2004)

"Magnetoresistance of a dilute magnetic alloy," Workshop on condensed matter theories (CMT 28), Saint Louis, MO (September, 2004)

"Vortex Dynamics and Fluctuations Near the Magnetic-Field-Tuned Superconductor-Insulator Transition," Colloquium, McMaster University, Hamilton, ON, Canada (January, 2005)

"Magnetoresistance of a dilute magnetic alloy," CMT seminar, University of Iowa, Iowa City, IA (February, 2005)

"Vortex Dynamics and Fluctuations Near the Magnetic-Field-Tuned Superconductor-Insulator Transition," CMT seminar, Boston University, Boston, MA (February, 2005)

"Vortex Dynamics and Fluctuations Near the Magnetic-Field-Tuned Superconductor-Insulator Transition," CMT seminar, University of Virginia, Charlottesville, VA (February, 2005)

"Vortex Dynamics and Fluctuations Near the Magnetic-Field-Tuned Superconductor-Insulator Transition," Colloquium, Washington University in Saint Louis, MO (February, 2005)

"Temperature dependent spin susceptibility in a two-dimensional metal," APS March Meeting, Los Angeles, CA (March, 2005)

"Vortex Dynamics and Fluctuations Near the Magnetic-Field-Tuned Superconductor-Insulator Transition," CMT seminar, California Institute of Technology, Pasadena, CA (March, 2005)

"Interplay between disorder and gauge fluctuatons in a $U(1)$ spin liquid," CMT seminar, University of California, Santa Barbara, CA (June, 2005)

"Vortex metals and singular Fermi liquids," CMT seminar, Johns Hopkins University, Baltimore, MD (October, 2005)

"Metallic phase in a two-dimensional disordered Fermi system with singular interactions," APS March Meeting, Baltimore, MD (March, 2006)

"The effect of interactions on the geometrical structure of the Fermi surface in systems with spin-orbit interactions," APS March Meeting, Baltimore, MD (March, 2006)

"Non-equilibrium phenomena in a Fermi gas near a Feshbach resonance," JQI seminar, College Park, MD (April, 2006)

"Spin diffusion in spin-orbit coupled systems," CM seminar, Rutgers University, Piscataway, NJ (November, 2006)

"Non-equilibrium dynamics of a mesoscopic atomic system," NIST, Gaithersburg, MD (February, 2007)

"Spin-orbit Coupling Effects in Solid State and Cold Atomic Systems," Kavli Institute for Theoretical Physics, Santa Barbara, CA (June, 2007)

"Superconducting fluctuations near a quantum critical point," Landau Institute for theoretical physics, Chernogolovka, Russia (June, 2007)

"Mesoscopic disorder fluctuations in a d-wave superconductor," Aspen Center for Physics, Aspen, CO (August 2007)

"Spin-orbit Coupling Effects in Solid State and Cold Atomic Systems," California Institute of Technology, Pasadena, CA (October, 2007)

"Spin-orbit Coupling Effects in Solid State and Cold Atomic Systems," The XXXI International Workshop on Condensed Matter Theories, Bangkok, Thailand (December, 2007)