

## Yafis Barlas

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Citizenship: Pakistani

### Education

Ph.D. Physics, University of Texas at Austin, 2008 (Expected).

M.A. Physics, University of Texas at Austin, 2004

B.S. Physics, Mathematics, University of Houston, 2002, *Magna Cum Laude*.

### Research Experience

January 2004- present University of Texas at Austin  
Topics in Fractional Quantum Hall Effect, Electron-electron interactions in graphene and Quantum Hall Ferromagnetism in graphene and graphite nanostructures.  
Advisor: Dr Allan H MacDonald

January 2002- August 2002 University of Houston  
Topics in finite difference methods applied to hyperbolic differential equations with discontinuous coefficients.  
Advisor: Dr Suncica Canic

May 2002- August 2002 University of Houston  
Topics in electrodynamicics applied to nanostructures.  
Advisor: Dr Pei-Herng Hor

June 1999- August 2001 University of Houston  
Development of drift chambers for experiment E-931 held at the AGS facility of Brookhaven National Laboratory.  
Advisor: Dr Ed V Hungerford

### Teaching Experience

August 2004- December 2005 Assistant Instructor, Introductory Physical Sciences: Mechanics and Heat. The University of Texas Department of Physics.

January 2003- August 2004 Teaching Assistant, Engineering Physics I & II. The University of Texas Department of Physics.

August 2002- December 2003 Teaching Assistant, Engineering Physics Laboratory : Mechanics and Heat. The University of Texas Department of Physics.

August 2001- January 2002 Teaching Assistant, Calculus I. University of Houston Department of Mathematics.

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### Current Research Interests

- Condensed Matter Theory.
- Quantum Hall Effect.
- Graphene and Graphite nanostructures.
- Quantum magnetism.
- Cold Atom Systems.
- Superconductivity.
- Correlated electron systems.

### Publications

Yafis Barlas and A. H. MacDonald *Unusual Quantum Hall Ferromagnetism in Bilayer Graphene*, (in preparation)

Marco Polini, Reza Asgari, Giovanni Borghi, Yafis Barlas, Tami Pereg-Barnea and A. H. MacDonald *The Role of Electron-electron interaction in Graphene ARPES Spectra*, cond-mat/0707.4230

Marco Polini, Reza Asgari, Yafis Barlas, Tami Pereg-Barnea and A. H. MacDonald *Graphene: A Pseudochiral Fermi Liquid*, Solid State Comm. **143**, 58 (2007)

Yafis Barlas, Tami Pereg-Barnea Marco Polini, Reza Asgari and A. H. MacDonald *Chirality and Correlations in Graphene*, Phys. Rev. Lett. **98**, 236601 (2007)

### Presentations

Invited Talk *Graphene: A Pseudochiral Fermi Liquid*, Texas A&M Condensed Matter Seminar, College Station, TX, March 28, 2007

Contributed Talk *RPA theory of Carrier Correlations in Graphene*, APS March Meeting, Denver, CO, March 7, 2007

### References

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| Allan H. MacDonald | The University of Texas at Austin, Physics Department.<br>1 University Station C1600, Austin, TX, 78712 USA.<br>macd@physics.utexas.edu |
| Pei-Herng Hor      | University of Houston, Department of Physics.<br>Houston, TX, 77204 USA<br>phor@uh.edu  |
| Marco Polini       | NEST-CNR-INFN and Scuola Normale Superiore<br>Piazza dei Cavalieri n. 7, I-56126, Pisa, Italy<br>m.polini@sns.it                        |
| Ed V Hungerford    | University of Houston, Department of Physics.<br>617 Science and Research I, Houston, TX, 77204 USA<br>hunger@uh.edu                    |
| Suncica Canic      | University of Houston, Department of Mathematics.<br>622 PGH Building, Houston, TX, 77204 USA<br>canic@math.uh.edu                      |