

Hâldun Sevinçli



Izmir Institute of Technology
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Education and Academic Degrees

- PhD** Physics, June 2008
Bilkent University, Ankara, Turkey
Supervisor: Prof. Dr. Salim Ciraci
Thesis: “Electromagnetic properties and phononic energy dissipation in graphene based materials”
- MS** Physics, January 2002
Middle East Technical University, Ankara, Turkey
Supervisor: Prof. Dr. B. Özgür Sarıoğlu
Thesis: “Tunneling time models and ‘Superluminality’ ”
- BS** Physics, February 1999
Middle East Technical University, Ankara, Turkey

Research Experience and Employment

- Nov 2013–** Assistant Professor
Department of Materials Science and Engineering,
İzmir Institute of Technology
- April 2012–Sept 2013** Postdoctoral Researcher
Department of Micro- and Nano-technology,
Technical University of Denmark
- July 2008–March 2012** Postdoctoral Researcher
Institute for Materials Science and Max Bergmann Center of Biomaterials
Dresden University of Technology
- Nov 2007–June 2008** PhD Scholarship
Department of Physics, Bilkent University
- Oct 2005–Oct 2007** Research fellowship
Scientific and Research Council of Turkey
- Sep 2003–Sep 2005** PhD Scholarship
Department of Physics, Bilkent University

Research Interests

- Quantum transport
- Low dimensional systems
- Graphene and related materials
- Thermoelectrics in nano- and meso-scale systems
- Phonon transport in nano-structured materials
- Transport in disordered systems
- Spintronic properties of low-dimensional systems
- Order- N computational methods for quantum transport

Teaching activities

İzmir Institute of Technology

- Quantum Mechanics of Materials Science and Engineering (mse515)

Dresden University of Technology

- Supervision of student projects for the courses “Computational Materials Science” and “Current Topics in Materials Science”
- Supervision of PhD student (Mr. Wu Li)
- Supervision of PhD student (Mr. Yu-Hsin Su)

Bilkent University (teaching assistantships)

- Freshman Physics and Laboratory I, II
- Classical Mechanics II (phys206)
- Quantum Mechanics I, II (phys326, phys327, msn508)
- Numerical Methods for Physicists (phys371)
- Nuclear Physics (phys453)
- Condensed Matter Physics I (phys445)
- Many Body Physics (YMFEC 2004-I: Research training in condensed matter physics, Feza Gürsey Institute)

Supervisor Functions

Supervision of PhD student Dr. Wu Li (graduated)

Supervision of PhD student Mr. Yu-Hsin Su

Publication and Citation Statistics (as of Feb 2014)

- 26 scientific publications
 - 23 research papers published in peer-reviewed journals
 - 4 papers as conference proceedings, book chapters or non-SCI publications
- Participation in 18 international conferences with 11 oral and 12 poster contributions.
- Citations: 558, Hirsch h-index: 11 [ISI Web of Science]

PUBLICATION LIST

Papers published in peer-reviewed journals

- [1] H. Sevinçli, T. Lehmann, D. A. Ryndyk, and G. Cuniberti. Comparison of electron and phonon transport in disordered semiconductor carbon nanotubes. *J Comput Electron*, 12(4):685–691, December 2013.
- [2] Hâldun Sevinçli, Cem Sevik, Tahir Çağın, and Gianaurelio Cuniberti. A bottom-up route to enhance thermoelectric figures of merit in graphene nanoribbons. *Sci. Rep.*, 3, February 2013.
- [3] Daijiro Nozaki, Hâldun Sevinçli, Stanislav M. Avdoshenko, Rafael Gutierrez, and Gianaurelio Cuniberti. A parabolic model to control quantum interference in t-shaped molecular junctions. *Phys. Chem. Chem. Phys.*, March 2013.
- [4] Daijiro Nozaki, Stanislav M. Avdoshenko, Hâldun Sevinçli, Rafael Gutierrez, and Gianaurelio Cuniberti. Prediction of quantum interference in molecular junctions using a parabolic diagram: Understanding the origin of fano and anti- resonances. *J. Phys.: Conf. Ser.*, 427(1):012013, March 2013.
- [5] Stas M. Avdoshenko, Pekka Koskinen, Haldun Sevinçli, Alexey A. Popov, and Claudia G. Rocha. Topological signatures in the electronic structure of graphene spirals. *Sci. Rep.*, 3, April 2013.
- [6] H. Sevinçli, W. Li, N. Mingo, G. Cuniberti, and S. Roche. Effects of domains in phonon conduction through hybrid boron nitride and graphene sheets. *Phys. Rev. B*, 84(20):205444, November 2011.
- [7] Cem Sevik, Hâldun Sevinçli, Gianaurelio Cuniberti, and Tahir Çağın. Phonon engineering in carbon nanotubes by controlling defect concentration. *Nano Lett.*, 11(11):4971–4977, November 2011.
- [8] Mark H. Rümmeli, Claudia G. Rocha, Frank Ortmann, Imad Ibrahim, Haldun Sevinçli, Felix Börrnert, Jens Kunstmann, Alicja Bachmatiuk, Markus Pötschke, Masashi Shiraishi, M. Meyyappan, Bernd Büchner, Stephan Roche, and Gianaurelio Cuniberti. Graphene: Piecing it together. *Advanced Materials*, 23(39):4471–4490, 2011.
- [9] Wu Li, Hâldun Sevinçli, Stephan Roche, and Gianaurelio Cuniberti. Efficient linear scaling method for computing the thermal conductivity of disordered materials. *Phys. Rev. B*, 83(15):155416, April 2011.
- [10] Justin Haskins, Alper Kınacı, Cem Sevik, Hâldun Sevinçli, Gianaurelio Cuniberti, and Tahir Çağın. Control of thermal and electronic transport in defect-engineered graphene nanoribbons. *ACS Nano*, 5(5):3779–3787, May 2011.
- [11] H. Sevinçli and G. Cuniberti. Enhanced thermoelectric figure of merit in edge-disordered zigzag graphene nanoribbons. *Phys. Rev. B*, 81(11):113401, March 2010.

- [12] D. Nozaki, H. Sevinçli, W. Li, R. Gutiérrez, and G. Cuniberti. Engineering the figure of merit and thermopower in single-molecule devices connected to semiconducting electrodes. *Phys. Rev. B*, 81(23):235406, June 2010.
- [13] Wu Li, Haldun Sevinçli, Gianurelio Cuniberti, and Stephan Roche. Phonon transport in large scale carbon-based disordered materials: Implementation of an efficient order-n and real-space kubo methodology. *Phys. Rev. B*, 82(4):041410, July 2010.
- [14] M. Topsakal, H. Sevinçli, and S. Ciraci. Spin confinement in the superlattices of graphene ribbons. *Applied Physics Letters*, 92(17):173118–173118–3, May 2008.
- [15] M. Topsakal, E. Aktürk, H. Sevinçli, and S. Ciraci. First-principles approach to monitoring the band gap and magnetic state of a graphene nanoribbon via its vacancies. *Phys. Rev. B*, 78(23):235435, December 2008.
- [16] H. Sevinçli, M. Topsakal, E. Durgun, and S. Ciraci. Electronic and magnetic properties of 3d transition-metal atom adsorbed graphene and graphene nanoribbons. *Phys. Rev. B*, 77(19):195434, May 2008.
- [17] H. Sevinçli, M. Topsakal, and S. Ciraci. Superlattice structures of graphene-based armchair nanoribbons. *Phys. Rev. B*, 78(24):245402, December 2008.
- [18] H. Sevinçli, S. Mukhopadhyay, R. T. Senger, and S. Ciraci. Dynamics of phononic dissipation at the atomic scale: Dependence on internal degrees of freedom. *Phys. Rev. B*, 76(20):205430, November 2007.
- [19] H Sevincli, R T Senger, E Durgun, and S Ciraci. Oscillatory exchange coupling in magnetic molecules. *Journal of Physics: Condensed Matter*, 19(21):216205, May 2007.
- [20] E. Durgun, R. T. Senger, H. Sevinçli, H. Mehrez, and S. Ciraci. Spintronic properties of carbon-based one-dimensional molecular structures. *Phys. Rev. B*, 74(23):235413, December 2006.
- [21] E. Durgun, R. T. Senger, H. Mehrez, H. Sevinçli, and S. Ciraci. Size-dependent alternation of magnetoresistive properties in atomic chains. *The Journal of Chemical Physics*, 125(12):121102–121102–4, September 2006.
- [22] Kerim Savran, T Hakioglu, E Mese, and Haldun Sevinçli. The off-resonant aspects of decoherence and a critique of the two-level approximation. *Journal of Physics: Condensed Matter*, 18(2):345–363, January 2006.
- [23] T. Hakioglu, Kerim Savran, Haldun Sevinçli, and Emine Meşe. Non-markovian decoherence: A critique of the two-level approximation. *Journal of Magnetism and Magnetic Materials*, 300(1):e579–e584, May 2006.