

# Ali Fattah

Faculty position: Assistant Professor  
Address: 1<sup>st</sup> floor, Electrical and Robotic Engineering  
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## **EDUCATION:**

**Ph.D. (May 2014):** Amirkabir University of Technology, Tehran, Iran.

Dissertation Title: Fabrication and Characterization of Graphene/Silicon Schottky diode and its detection applications.

Dissertation Adviser: Dr. Saeid Khatami

*Sabbatical stay:* Nanobioelectronics & Biosensors Group, Institut Català de Nanociència i Nanotecnologia (ICN2), Campus de la UAB, Bellaterra, Barcelona, Spain.

Advisor: Prof. Arben Merkoci

**M. Sc. (June, 2009):** Amirkabir University of Technology, Tehran, Iran.

Dissertation Title: Simulation and Characterization of double-gate MOSFETs for the reduction of non-forward current.

Thesis Adviser: Dr. Saeid Khatami

**B. Sc. (May, 2006):** Ferdowsi University of Mashhad, Mashhad, Iran.

Thesis Topic: Fabrication of an Automation System sample for indoor applications.

Adviser: Jamshid Zare

## **RESEARCH INTERESTS:**

- Fabrication and Characterization of Semiconductor Devices
- Semiconductor Gas Detectors
- Graphene based devices
- IR and Terahertz Detection
- Nano Electronics
- Design and Simulation of Operational Amplifiers

**TEACHING EXPERIENCES:**

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|---|---|--|
| 1) Shahrood University, Shahrood<br>(From Sep. 2014)                              | <i>Semiconductor Devices<br/>Electronics 1&amp;2<br/>Microprocessors</i>  | <i>Statics and Probability<br/>Electrical Circuits 1&amp;2<br/>Modern Physics</i>  |
| 2) Amirkabir University of<br>Technology, Tehran<br>(Sep. 2007-Jun. 2014)         | As a lecturer:<br><i>Semiconductor Devices<br/>Theory and Technology<br/>of Semiconductor<br/>Devices Fabrication</i>                   | As a Teacher Assistant:<br><i>Electronics 1&amp;2<br/>Electrical Circuits 1&amp;2</i>  |
| 3) Pouyesh University of higher<br>education, Qom<br>(Feb. 2011-Jun. 2014)        | As a lecturer for graduate<br>students:<br><i>Theory and Technology<br/>of Semiconductor<br/>Devices Fabrication</i>                    | As a lecturer for under-<br>graduate students:<br><i>Electrical Circuits 1&amp;2<br/>Electronics 1&amp;2<br/>Differential Equations<br/>Special Topics in Electronics<br/>Television System<br/>Technical language</i> |
| 4) Bahar University of higher<br>education, Mashhad<br>(Summer 2010)              | As a lecturer for under graduate students:<br><i>Electronics 1</i>  |  |
| 5) Azad University, Abhar<br>(Feb. 2010- Jan. 2011)                               | As a lecturer for under graduate students:<br><i>communication circuits<br/>Special Topics in Electronics<br/>Electrical Circuits 2</i> |  |
| 6) Shahab Danesh University of<br>higher education, Qom<br>(Feb. 2014- Jun. 2014) | As a lecturer for graduate students:<br><i>Semiconductor Devices</i>  |  |
| 7) Khorasan University of higher<br>education, Mashhad<br>(Summer 2010)           | As a lecturer for under graduate students:<br><i>Electronics 1</i>  |  |

**HONORS AND AWARDS:**

- 1) Graduated as one of the top students from the NODET (National Organization for Development of Exceptional Talents) high school of Mashhad in 2001.

- 2) Ranked 680<sup>th</sup> in the entrance exam for B.Sc. degree among about 500,000 mathematics students in 2001.
- 3) Accepted in M.Sc. entrance exam with the rank of 120 in 2006.
- 4) Ranked second among the PhD students who entered Amirkabir University of Technology in 2009.

### **JOURNAL PUBLICATIONS:**

- [1] **A. Fattah**, S. Khatami, "Selective H<sub>2</sub>S Gas Sensing With a Graphene/n-Si Schottky Diode", *IEEE Sensors Journal*, vol. 14, no. 11, pp. 4108-4108, 2014.
- [2] **A. Fattah**, S. Khatami, CC. Mayorga-Martinez, M. Medina-Sánchez, L. Baptista-Pires and A. Merkoci, "Graphene/Silicon Heterojunction Schottky Diode for Vapors Sensing Using Impedance Spectroscopy", *Small Journal*, vol. 10, no. 20, pp. 4193-4199, 2014.
- [3] **A. Fattah**, S. Khatami, "A simple method for fabrication of graphene–silicon Schottky diode for photo-detection applications", *Optical and Quantum Electronics Journal*, vol. 47, no. 3, pp. 613-620, 2015.
- [4] S. Khatami, H. Akrami, **A. Fattah**, "Low-Power Operation of Pt/Porous Si Schottky-Diode Gas-Sensor through a Reduction in its Breakdown Voltage", *Solid State Phenomena Journal*, vol. 316, pp. 81-88, 2011.

### **CONFERENCE PUBLICATIONS:**

- [5] **A. Fattah**, and S. Khatami, "A New method to model Double-Gate MOSFET drain current for using in circuit simulators", IEEE International Electron Devices and Materials Symposia, IEDMS, November 28-29, National Chung Hsing University, Taichung, Taiwan, 2008.
- [6] **A. Fattah**, and S. Khatami, "Equation based method to model Double-Gate MOSFET drain current", International Conference on Materials and Advanced Technologies, ICMAT, 28 June-3 July, 2009, Singapore.
- [7] **A. Fattah**, and A. Zarifkar, "Simulation and Optimization of a simple Dynamic Modeled p-i-n TWPD", AOM 2010, Guangzhou, China.

[۸] علی فتاح و سعید خاتمی، "مدلسازی و شبیه سازی اثرات کانال کوتاه در ماسفت های دوگیتی با هدف بهبود جریان زیرهدایت"، هفتمین کنفرانس فن آوری نانوی ایران، دانشکده شیمی دانشگاه تربیت مدرس، خردادماه ۱۳۸۹.

[۹] علی فتاح و سعید خاتمی، "طراحی و ساخت آشکارساز گاز سولفید هیدروژن"، هفتمین کنفرانس شیمی فیزیک ایران، دانشکده شیمی دانشگاه صنعتی خواجه نصیرالدین طوسی، آبان ماه ۱۳۹۳.

### **BOOK CHAPTER:**

J. Zare and A. Fattah, "An Introduction to the AVR Microcontrollers", Partonegar Publication Center, 2005.

### **REFEREE ACTIVITIES:**

- 1) Journal of Physics-D
- 2) IEEE Sensors Journal
- 3) Nanotechnology Journal
- 4) 30<sup>th</sup> Power System Conference (PSC 2015)

### **REFERENCES:**

- 1) Dr. Hassan Ghafourifard, Professor,  
*Electrical Engineering Department, Amirkabir University of Technology, Tehran, Iran.*
- 2) Prof. Arben Merkoci, Professor,  
*Institut Català de Nanociència i Nanotecnologia (ICN2), Campus de la UAB, Bellaterra, Barcelona, Spain.*
- 3) Dr. Hamidreza Habibian, Assistant Professor,  
*Physics Department, Amirkabir University of Technology, Tehran, Iran.*
- 4) Amir Kashi, Lecturer  
*Electrical Engineering Department, Amirkabir University of Technology, Tehran, Iran.*