

## Ashraf M. Farahat, PhD

### 1. PERSONAL DATA

- A. **Farahat**, Ashraf
- B. Married, two children
- C. Permanent Resident of Canada
- D. DOB: July 23, 1972
- E. English
- F. Post-doctoral fellow, Royal Military College of Canada.
- G. 3-56 Lansdowne St, Kingston, ON K7K 4E3  
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### 2. EDUCATION

**PhD of Science** (Physics/Space Sciences) (GPA 3.8), 2005

Thesis Title: 'Cosmic Ray Propagation in Interstellar Space'

- Florida Institute of Technology, Melbourne, FL
- Florida Space Institute, Kennedy Space Center, FL
- Patrick Air Force Base, Cape Canaveral, FL

#### RELEVANT COURSEWORK

Space Physics, High Energy Astrophysics, Parallel Processing using MPI, Advanced Quantum Mechanics, Thermodynamics, Statistical Mechanics Classical Electrodynamics, Planetary Sciences + (Interiors & Atmospheres), space environment, Space Power system.

**Master of Science** (Physics), 1999

Thesis Title: Improvement of the Performance of Fiber Optics.

- University of Alexandria, Egypt

**Bachelor of Science** (Physics), 1993

- University of Alexandria, Egypt

### 3. ADDITIONAL ACADEMIC QUALIFICATIONS

- **Post Doctoral Fellow** (January 2008)

Department of Mechanical Engineering, Royal Military College of Canada, Kingston, ON Canada

**Project:** Plasma Physics, Electric Propulsion System for Micro and Nano Satellites.

### 4. EMPLOYMENT HISTORY

January 2008 – Present:

**Post Doctoral Fellow,**

Department of Mechanical Engineering, Royal Military College of Canada, Kingston, ON, CANADA

August 2006 – December 2007:

**Visiting Assistant Professor/Research Associate,**

Department of Physics, Oakland University, Rochester, MI, USA

August 2005 – May 2006:

**Assistant Professor** (1 year Temporary position)

Department of Physics and Technology, Edinboro University of Pennsylvania, PA, USA

May 2005

**Post-doctor fellow,**

Department of Physics and Space Sciences, Florida Institute of Technology, Melbourne, FL, USA

August 2000 – May 2005

**Research/Teaching Assistant**

Department of Physics and Space Sciences, Florida Institute of Technology, Melbourne, FL, USA

October 1995- August 2000

**Research/Teaching Assistant,**

Department of Physics, University of Alexandria, Alexandria, Egypt,

### 5. TEACHING EXPERIENCE

a. **Principal areas of teaching specialization:**

Astrophysics, Space Sciences, Computational Physics and Plasma Physics

**b. Course taught:**

- Thermodynamics II, Royal Military College of Canada, Winter 2009.
- Thermodynamics I., Royal Military College of Canada, Fall 2008.
- Introduction to Physics II, Serway and Faughn 7<sup>th</sup> Ed., Oakland University, Spring 2007.
- Conceptual Physics Hewitt 10<sup>th</sup> Ed., Oakland University, Winter 2007.
- Introduction to Physics I, Cutnell & Johnson 6<sup>th</sup> Ed., Oakland University, Winter 2007.
- Principles of Physics I (Calculus-Based) Serway & Jewett 6<sup>th</sup> Ed., Oakland University, Fall 2006.
- Principles of Physics II (Calculus-Based) Serway & Jewett 6<sup>th</sup> Ed., Oakland University, Fall 2006.
- Mathematical Methods for Physicists, Arfken & Weber 5<sup>th</sup> Ed., Edinboro University of PA, Spring 2006.
- Physics I, Physics, Douglas C. Giancoli 6<sup>th</sup> Ed., Edinboro University of PA, Spring 2006.
- Physics Sciences, Physical Science I, Bill W. Tillery, Edinboro University of PA, Spring 2006.
- Nature of Sound, Musical Acoustics, Donald E. Hall 3<sup>rd</sup> Ed., Edinboro University of PA, Fall 2005.
- Nature of Sound Lab, Edinboro University of PA, Fall 2005.
- Physics I, Physics, Douglas C. Giancoli 6<sup>th</sup> Ed., Edinboro University of PA, Fall 2005.
- Physics Sciences, Physical Science I, Bill W. Tillery, Edinboro University of PA, Fall 2005.
- Physics Sciences Lab, Edinboro University of PA, Fall 2005.
- Physics II (Calculus based), Fundamental of Physics, Halliday & Resnick 7<sup>th</sup> Ed., Florida Institute of Technology, Summer 2005.
- Physics I Lab, Florida Institute of Technology, 2004/2005
- Physics I Lab, Physics II Lab and Senior Lab, Alexandria University, 1996-1999

**6. OTHER COLLEGE DUTIES**

Member, Department of Physics, Edinboro University, upgrading undergraduate student Physics Lab

**7. ADVANCED TEACHING SKILLS**

- Constructing and teaching an online course, Oakland University.
- Effective Teaching Skills, Alexandria University, Egypt Summer 2006

Object: To gain knowledge, abilities and skills necessary to be an effective teacher and develop philosophy of teaching.

- New Trends in Teaching, Alexandria University, Egypt, Summer 2006  
Objective: To learn new techniques and skills in teaching
- Using technology and effective presentation skills in classrooms, Alexandria University, Egypt, Summer 2006  
Objective: To gain knowledge, abilities and skills necessary to be effective when making presentations to technical and /or non-technical audiences.
- Using the NAG Numerical Libraries with High Performance Computing, Queens University, Canada 2008

## 8. TECHNICAL SKILLS

- Programming Languages- C/C++, FORTRAN 77, IDL, Python
- Operating System: UNIX, Linux, Windows, Mac
- High Performance Programming- Cluster computing using MPI
- Applications- Tecplot 360, IPLab, Transform, WebCT, Moodle, FrontPage, MATLAB, PowerPoint, Excel, Markup Languages- LATEX

## 9. HONORS AND AWARDS

- Edinboro University of Pennsylvania (2005): Exceptional in the Classroom award
- Florida Academy of Sciences (2004): Outstanding Space Physics research award
- Florida Institute of Technology (2003): Outstanding PhD student in Space Physics
- Alexandria University (2000): Outstanding student in Physics fellowship award
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## 10. AFFILIATION

- American Association of University Professors (AAUP)
- American Geophysical Union (AGU)
- Sigma Pi Sigma Honor Society

## 11. PUBLICATIONS AND SYMPOSIA

### a. Papers published in referred, scholarly journals:

[1] **Ashraf Farahat**, Ming Zhang, Hamid Rassoul and J. J. Connell, Cosmic Rays Transport and Production in the Galaxy: A stochastic Propagation Simulation Approach, 2008, ApJ, 681, 1334.

[2] Mustafa Ali, **Ashraf Farahat**, Salah Helmi and Maher Farhoud, Stress Analysis of Polarization Maintaining Optical Fibers by the Finite Element Method, 1999, JER, 55, 117

b. Papers submitted to referred, scholarly journals:

[1] **Ashraf Farahat**, Ming Zhang, Hamid Rassoul and J. J. Connell, Spatial Contribution of Galactic Cosmic Ray Sources using Markov Stochastic Method, submitted to ApJ July 12, 2008

[2] **Ashraf Farahat**, The effect of the Choice of the Modulation Approximation Parameter on Calculating the Solar Modulation, submitted to Egyptian Journal of Physics January, 2008

c. Thesis:

[1] **Ashraf Farahat**, “Cosmic Rays Propagation and Interactions”, Ph.D., Florida Institute of Technology, May 2005.

d. Papers presented at major conferences and symposia:

[1] **Ashraf Farahat**, M. Jugroot, Modeling of Plasma and Gas Heating in Microthrusters for Nano-Satellites, to be submitted to 17<sup>th</sup> Annual Conference of the CFD Society, Ottawa, Canada, May 2009

[2] **Ashraf Farahat**, Hesham Al-Askary, Connection of Cosmic Ray solar cycle with variation of planetary cloud coverage, COSPAR, Montreal, Canada, 2008

[3] **Ashraf Farahat**, Effect of Technology on Classrooms and Students, 7<sup>th</sup> Annual Lilly-Transverse City, Conference on College and University Teaching and Learning, Traverse City, MI, October 2007.

[4] **Ashraf Farahat**, Ming Zhang, Hamid Rassoul and J. J. Connell, Spatial Distribution of Galactic Cosmic Ray Sources, the 30<sup>th</sup> International Cosmic Ray Conference, Merida, Yucatan, Mexico, July 2007.

[5] **Ashraf Farahat**, The Dependence of the  $^{22}\text{Ne}/^{20}\text{Ne}$  Ratio on the Distribution of Massive Stars in the Galaxy, the 30<sup>th</sup> International Cosmic Ray conference, Merida, Yucatan, Mexico, July 2007.

[6] **Ashraf Farahat**, Space Radiation Risks in Deep Space Missions, submitted to the National Society of Black Physicists (NSBP) Meeting, San Jose, CA, February, 2006

[7] **Ashraf Farahat**, Radiation Hazard from Galactic Cosmic Rays, submitted to the American Physical Society (APS) Annual Meeting, Baltimore, MD, March, 2006

[8] **Ashraf Farahat** and I. I. Sabeh, New Model for Protons Particle Interplanetary Propagation, SHINE Workshop, Kona, Hawaii, 2005

[9] **Ashraf Farahat**, Ming Zhang, Hamid Rassoul and J. J. Connell, New Development for Galactic for Cosmic Ray Propagation, 29 International Cosmic Ray Conference, Pune, India, 2005

[10] **Ashraf Farahat**, Ming Zhang, Hamid Rassoul and J. J. Connell, New Development in Cosmic Ray Propagation Models, COSPIN meeting, Melbourne, Fl, 2005

[11] **Ashraf Farahat**, Ming Zhang, Hamid Rassoul and J. J. Connell, Elemental and Isotopic Composition of Galactic Cosmic Rays, Florida Academy of Sciences, Orlando, Fl, 2004

[12] **Ashraf Farahat**, Ming Zhang, Hamid Rassoul and J. J. Connell, Calculation of Elemental and Isotopic Abundance of Cosmic Rays using Markov Stochastic Method: The effect of the Local Supper Bubble, 28 International Cosmic Ray Conference, Tsukuba, Japan, 2003

[13] **Ashraf Farahat**, Ming Zhang, Hamid Rassoul and J. J. Connell, New Model for Cosmic Ray Propagation, Florida Academy of Sciences, Orlando, Fl, 2003

[14] Mustafa Ali, **Ashraf Farahat**, Salah Helmi and Maher Farhoud, Stress Induced Birefergence of Polarization Maintaining Fibers, East Asian Conference on Light-wave Systems, Lasers and Optoelectronics, Malaysia, 1999

e. Invited Talks:

- **Ashraf Farahat**, Undergraduate Research Festival, Oakland University, Fall 2007
- **Ashraf Farahat**, Ambassadors of the Universe: The Cosmic Rays, Oakland University, Summer 2006
- **Ashraf Farahat**, Black Holes, Tallahassee Community College, Spring 2006
- **Ashraf Farahat**, Listen for the Cosmic Rays, Edinboro University of Pennsylvania, Fall 2005
- **Ashraf Farahat**, The Space Elevator, Edinboro University of Pennsylvania, Fall 2005
- **Ashraf Farahat**, Cosmic Ray as a part of the Universe, Embry Riddle University, Summer 2005
- **Ashraf Farahat**, Reporter Talk: The 28<sup>th</sup> International Cosmic Ray Conference, Tuskuba, Japan, Florida Institute of Technology, Fall 2004.

## 12. RESEARCH GRANTS AND CONTRACTS

Project Title and Principle Investigator	Funding Source	Amount	From	To
Cosmic Ray Link to Global Warming <b>Dr. Ashraf Farahat</b>	Oakland University Research Committee	\$8,500	May 2008	September 2008
Cosmic Ray Propagation and Interaction. <b>Dr. Ashraf Farahat</b>	Government of Egypt	\$15,000/year	August 2000	May 2004