

# Irfan Ullah Chaudhary

**Address:** 47-D New Muslim Town, Lahore 54600, Pakistan.

**Phone:** (9242) 586-4202

**Email:** [irfanc@alum.mit.edu](mailto:irfanc@alum.mit.edu)

**Education:** Ph.D. (Electrical Engineering) 2001-2005  
Massachusetts Institute of Technology  
Thesis Supervisor: Prof. Peter Hagelstein  
Thesis Title: Applications of group theory to few-body physics

M.Sc. (Electrical Engineering) 1994-1995  
Massachusetts Institute of Technology

B.Sc. (Electrical Engineering) 1989-1993  
Massachusetts Institute of Technology

## Professional Experience

Associate Professor 2007-Present  
Dept. of Computer Science & Engineering  
University of Engineering & Technology  
Lahore, Pakistan

Visiting Faculty 2008-Present  
Dept. of Physics  
Lahore University of Management Sciences  
Lahore, Pakistan

Research Affiliate 2007-Present  
Massachusetts Institute of Technology  
Dept. of Electrical Engineering & Computer Science  
Cambridge, MA 02139  
U.S.A.

Postdoctoral Research Associate 2005-2008  
Dept. of Electrical Engineering & Computer Science  
Massachusetts Institute of Technology  
Cambridge, MA  
U.S.A.

## Research Papers

1. "Coherence factors in many-particle three-level systems"(with P. L. Hagelstein)  
*Proceedings of ICCF10 (August 2003, Cambridge, MA, U.S.A.)* World Scientific (2006).

2. "Few-body nuclear wave functions"(with P. L. Hagelstein). *Proceedings of ICCF10 (August 2003, Cambridge, U.S.A.)* World Scientific (2006).
3. "Four-body RST General Nuclear Wavefunctions and Matrix Elements" (with P. L. Hagelstein) *Proceedings of ICCF12(November 2005, Yokohama, Japan)* World Scientific (2006).
4. "Inclusion of phonon-exchange in a nuclear reaction"(with P. L. Hagelstein) *ArXiv:cond-mat/0606585*.
5. "Two-level systems coupled to an oscillator: Excitation transfer and energy exchange"(with P. L. Hagelstein) *ArXiv:cond-mat/0612306*.
6. "Two-level systems and a low-energy oscillator: Excitation transfer and energy exchange"(with P. L. Hagelstein) *Bulletin of American Physical Society B31:00006*.
7. "Progress toward a theory of excess heat in metal deuterides"(with P. L. Hagelstein, M. C. H. McKubre and F. Tanzalla) *Current Trends in International Fusion Research*. NRC Research Press, National Research Council of Canada, in press (2007).
8. "Models relevant to excess heat production in Fleischmann-Pons experiments" (with P. L. Hagelstein) *Low Energy Nuclear Reactions Sourcebook* (J. Marwan and S. Krivit eds.) American Chemical Society. ACS Symposium Series 998 (2008).
9. "Progress on phonon exchange models for excess heat in metal deuterides" *Proceedings of ICCF13 (June 2007, Dagomys, Russia)* MATI, Russia (2008)
10. "Bloch-Siegert shift for multiphoton resonances" (with P. L. Hagelstein) *ArXiv:0709.1958*.
11. "Level Splitting in association with the multiphoton Bloch-Siegert shift" (with P. L. Hagelstein) *J. Phys. B.:At. Mol. Phys.* **3** 035601
12. "A theoretical formulation for problems in condensed matter nuclear science" (with P. L. Hagelstein et al) *Proceedings of ICCF14 (August 2008, Washington DC, U.S.A.)* (in press).
13. "Excitation transfer and energy exchange processes for modeling the Fleishmann-Pons excess heat effect" (with P L Hagelstein) *Proceedings of ICCF14 (August 2008, Washington DC, U.S.A.)* (in press).
14. "Multiphoton Bloch-Siegert shifts and level-splittings in spin-one systems" (with P. L. Hagelstein) *J. Phys. B.:At. Mol. Phys.* **3** 035602
15. "Electron mass shift in nonthermal systems" (with P. L. Hagelstein) *J. Phys. B: At. Mol. Opt. Phys.* **41** 125001
16. "Multiphoton Bloch-Siegert shifts and level splittings in a three-level system" (with P. L. Hagelstein) *J. Phys. B: At. Mol. Opt. Phys.* **41** 105603
17. "Excitation transfer in two two-level systems coupled to an oscillator" (with P. L. Hagelstein) *J. Phys. B: At. Mol. Opt. Phys.* **41** 135501

## Teaching Experience

*Lahore University of Mangement Sciences, Lahore*  
 Recitation Instructor

Waves and Oscillations  
 Electromagnetism

Spring 2008  
 Winter 2008

*University of Engineering & Technology, Lahore*  
 Lecturer

Electromagnetic Theory  
 Advanced Applied Mathematics

Fall 2007  
 Fall 2007

*National University of Computer & Emerging Sciences, Lahore*  
Instructor

Physics I, Calculus II, Discrete Mathematics,  
Theory of Computation 1998-2001

## **Job Experience**

*Shaheen Paper & Board Industries, Lahore* 1996-2001

Technical Director. Introduced energy efficient,  
environmentally friendly innovations to increase  
productivity of the plant.

*Systems (Pvt.) Ltd., Lahore* 1995-1996

Software Engineer. Helped troubleshoot software.  
Developed and implemented algorithms.

*MIT, Cambridge, MA* 1991

Organized and coached a squash training camp  
along with MIT coach James Taylor for  
freshmen and sophomores.

## **Extra-curricular Awards**

Second-Team All-American in Intercollegiate Squash, 1994  
Ranked first in MIT Squash Team 1989-92, 1994  
Ranked second in Massachusetts State Squash, 1994-5, 2002-2003.

## **References**

Professor Peter Hagelstein  
Department of Electrical Engineering and Computer Science  
Massachusetts Institute of Technology  
Room 36-570  
77 Massachusetts Avenue  
Cambridge, MA 02139  
U.S.A.  
Phone: (617)-253-7533  
Email: [plh@mit.edu](mailto:plh@mit.edu)

Professor Wilfried Schmid  
Department of Mathematics  
Harvard University

Cambridge, MA 02138  
U.S.A.  
Phone: (617) 495-7840  
Email: [schmid@math.harvard.edu](mailto:schmid@math.harvard.edu)

Professor Terry Orlando  
Department of Electrical Engineering and Computer Science  
Massachusetts Institute of Technology  
Room 13-3006  
77 Massachusetts Avenue  
Cambridge, MA 02139  
U.S.A.  
Phone: (617) 253-5888  
Email: [orlando@mit.edu](mailto:orlando@mit.edu)